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EDITORIAL STAFF:
Editor: F. G. Dickinson
Associate Editors:
Taxation: D. C. Wilkins
Legal: L. C. Voumard
Cost Accounting: A. H. Blamey

Editorial Office:
Queen Street, Melbourne
Telephone: 62-5861

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Telephone: 30-4221

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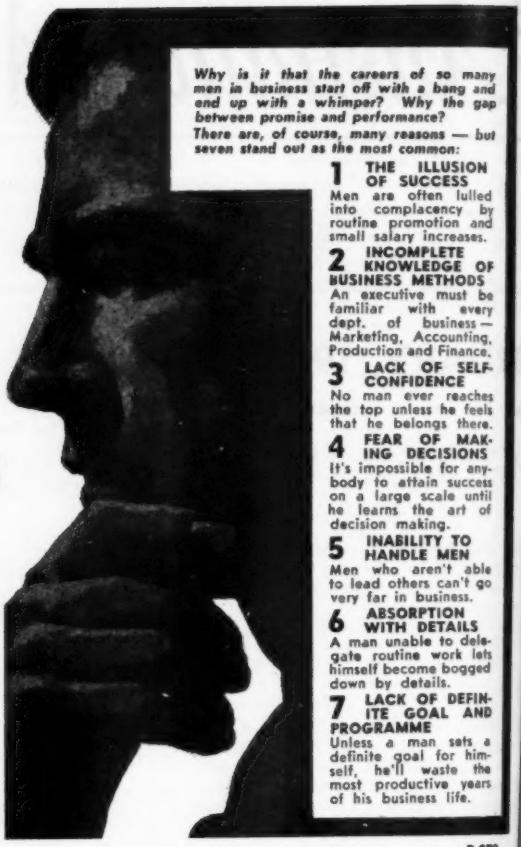
Opinions expressed by the editors and contributors are their own and not necessarily endorsed by the Australian Society of Accountants, The Australasian Institute of Cost Accountants, or the New Zealand Institute of Cost Accountants (Inc.).

7 vital reasons why so many business careers slow down so soon!



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There are, of course, many reasons — but seven stand out as the most common:

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3 LACK OF SELF-CONFIDENCE
No man ever reaches the top unless he feels that he belongs there.

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5 INABILITY TO HANDLE MEN
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6 ABSORPTION WITH DETAILS
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The Accountant's Contribution to Management

THE control of business is steadily becoming more complex and those responsible for making managerial decisions need all the relevant information and advice they can obtain so that decisions are made with a full cognisance of all the facts and circumstances.

More intense competition is being experienced in practically every variety of business activity and this, with the rapid and far-reaching consequences of technological changes and developments, requires that the decisions of management be made on a scientific basis and with the minimum delay after the need for a decision becomes apparent. Indeed, wise management arranges to be armed with information which may indicate certain trends well in advance of their likely development. This projected knowledge enables vital decisions to be made of a true guiding or piloting nature — the essence of good management — whereas the management handicapped by inadequate knowledge usually is forced into a position of having to retrieve or correct an already difficult situation.

The accountant can fill an important place in the management team. By training, experience and aptitude he is fitted to control the accounting activities of his organisation and he has the knowledge and perception to enable him to analyse and assess the financial affairs of an enterprise in terms of current and prospective trends. To do this effectively he should think managerially so that he can anticipate management's demands for the right information at the right time and he needs to understand the management process in all its facets — planning, financial, directing, controlling and marketing.

Any developments or techniques which may assist him to develop his potential for service to management should be studied and evaluated in the light of the needs of his particular organisation. Such development is furnished by operations research which is a scientific method of providing executives with a quantitative basis for decisions regarding the operations under their control. While the word "research" implies that the aim is more toward understanding than toward practical utility, it has been found generally that outstandingly practical solutions have resulted from the "understanding" of a problem submitted for study by the techniques of operations research.

At page 77 of this issue in an article entitled "Operations Research — A Challenge to the Accountant", Mr. W. A. Dick traces the development of the science of operations research and indicates how its concepts and practice can be applied by the accountant to enable him to render a better service to management. The author in advocating the use of operations research to solve problems encountered from day-to-day by management gives details of several interesting practical problems and how they were solved scientifically by the use of operations research.

The article stresses that most top executives today do require all the help they can obtain in their vital tasks of decision making, and that the accountant by the nature of his function and knowledge is most favourably placed to render such help.

Operations research is a team activity which brings together people qualified in different professions. The accountant's fundamental importance in business generally would certainly suggest that he is qualified to take his place in the operations research team. However, his contribution to the team's work can be strengthened and developed if he possesses a knowledge of the manner in which operations research may be used. In Mr. Dick's opinion this is a challenge which accountants cannot afford to ignore.

Visit of American Lecturers Arouses Wide Interest

THE Society's initiative in arranging for four American accounting authorities to visit Australia for a series of lectures beginning in April has aroused considerable interest in accounting and business circles. As announced in the January issue of *The Australian Accountant* the lecturers will visit each State capital in turn thus enabling a wide representation of the Society's members to benefit by attending the lectures.

Considerable thought was given to the choice of subjects to be dealt with by the lecturers. It was desired that the subjects should be of maximum practical value to members and at the same time that they would provoke keen interest and discussion in matters of significance to the profession and to the business community generally. It is believed that these aims have been met by the subjects chosen. They are:—

Course 1: "Management Control Through Accounting."

Course 2: "Challenges in Financial Management."

Course 3: "Problems in the Planning and Control of Production."

Course 4: "The Application of Business Research to Accountancy."

The Society has been fortunate to secure lecturers well qualified academically and by experience to present these subjects in an informative and interesting manner. The lecturers and their courses are as follow:

Mr. DONALD J. BEVIS, M.B.A. — Course 1.

Mr. T. KENNETH HAVEN, A.B., M.B.A., Ph.D. — Course 2.

Mr. MORRIS R. LILES, M.E. — Course 3.

Mr. KENNETH G. STUART, A.B., M.B.A. — Course 4.

In sponsoring the series of lectures, with the aid and support of the Commonwealth Bank of Australia, the Society has initiated a lecture series of great consequence. It will enable members of the Society to benefit from exchange of accounting thought and knowledge at a personal level with lecturers conversant with the most modern trends in the profession overseas.

Final details of the lectures together with an enrolment form will be set out in a brochure which will be sent to every member early in March next.

SCHEDULE OF COURSES — Courses will be presented in the various capital cities during the weeks commencing on the following dates:—

	Course 1	Course 2	Course 3	Course 4
SYDNEY	Apl. 24	May 1	May 8	May 15
MELBOURNE	May 1	May 8	May 15	May 22
ADELAIDE	May 8	May 15	May 22	May 29
PERTH	May 8	May 15	May 22	May 29
HOBART	May 15	May 22	May 29	June 5
BRISBANE	May 15	May 22	May 29	June 5

In Melbourne and Sydney the courses will be delivered in the late afternoon — 4 p.m. to 6 p.m. — on four consecutive days and, in each other city, on two days at times yet to be arranged.

Repairs to Income-Producing Property

By D. C. WILKINS, B.Com., A.A.S.A.

An examination of recent decisions of the Board of Review and the High Court relating to deductions claimed under Section 53 of the Income Tax Assessment Act.

SECTION 53 of the Income Tax Assessment Act provides for a deduction from assessable income of expenditure incurred by a taxpayer for repairs, not being expenditure of a capital nature, to premises, plant, machinery, implements, rolling stock or articles held, occupied or used by him for the purpose of producing assessable income, or in carrying on a business for that purpose.

Essential requirements of the section, therefore, are that the expenditure incurred must not be of a capital nature, and that it must be in relation to plant, etc., "held, occupied or used" by the taxpayer in the course of his income-producing activities.

The cases considered below provide an indication of the more recent thoughts on the operation of Section 53.

8 C.T.B.R. (N.S.) Case 22

Taxpayer received rent from shop premises fronting a main highway. The local government authorities required the fascia plate of a cantilever-type awning outside the shop to be set back two feet inside the kerb line so that it would not be an inconvenience to vehicles using the highway. The work done involved shortening tie rods, cutting back girders, re-affixing the fascia plate, restoration of ceilings, painting, and plumbing work on the guttering.

The Board decided that the awning had not been repaired. No part of it was restored or renewed, no loose or detached part required re-fixing. Although the local government order rendered the awning unsatisfactory for its present purpose, it did not render it defective in the ordinary and accepted sense of the word.

The Commissioner's disallowance of the claim for deduction under Section 53 was therefore confirmed.

8 C.T.B.R. (N.S.) Case 39

Taxpayer was a member of a partnership which owned a hotel. The electrical system in the hotel, which was "old, perished and dangerous", was demolished and all the wiring, lampholders and switches were replaced. One point of entry and one switchboard was used in place of three existing previously.

The conduit was taken out and replaced; apart from that all the material used was new, including separate light and power circuits and other refinements required by the electricity commission.

The Board agreed with the taxpayer that the use of a different material in the replacement does not of itself disqualify the work from being in the nature of a repair. The taxpayer had then contended, however, that all the partnership had after the rewiring work was done was an electrical system which worked efficiently whereas previously it had not, and therefore a repair, and not an improvement, had been effected. It was pointed out, however, that the ordinary meaning of the word "repair" signifies the restoration of the thing repaired, not its complete renewal and replacement. In this case, a new and better lighting system had been substituted for a worn-out and obsolete one, and by majority, the Board decided that the expenditure involved was of a capital nature, not allowable as a deduction under Section 53.

Mr. A. P. Webb, Member, took the minority view that the work done was

Note: Substantially, these decisions have not been referred to in the Notes on Selected Tax Cases.

in the nature of a repair. Reference was made to the English case of *Morcom* v. *Campbell-Johnson* (1955) 3 All E.R. 264 where Denning, L. J., said "If the work which is done is the provision of something new for the benefit of the occupier, that is, properly speaking, an improvement; but if it is only the replacement of something already there, which has become dilapidated or worn out, then albeit that it is a replacement by its modern equivalent, it comes within the category of repairs and not improvements." The majority of the Board considered that this statement was not applicable to the present case, that reinstatement can be capital expenditure even though no improvement may be involved.

8 C.T.B.R. (N.S.) Case 53

Taxpayer company owned a large building in Sydney. The front wall of the building was faced with a veneer of structural glass known as "vitrolite", a large piece of which, in January, 1953, fell into the street. A detailed inspection then disclosed that the joints between the vitrolite tiles and between the tiles and window joints had suffered serious deterioration because of the action of sun, rain and wind, and that as a consequence water had seeped in behind the tiles, rusting steel hoods over the windows, cracking the tiles, rusting steel windows, damaging ceilings, rusting steel reinforcing rods and causing deterioration of cement.

It was decided that the replacement of vitrolite tiles and steel windows would not be practicable, and therefore the wall of the building was refaced with "travertine", a type of marble, the steel windows replaced with bronze, and flashings provided where there were none previously. The architect estimated that the cost of refacing with travertine and replacing with bronze windows would be £40,000, as against £38,250 if the vitrolite facing could have been installed, and the steel windows were retained. The work was actually done at a cost to taxpayer company of £52,992.

The Commissioner contended that the building was inherently defective and the work done to remedy the defect was not in the nature of a repair. Alternatively, he submitted that because the work done produced such an improvement to the building, the expenditure was of a capital nature.

The Board was of the opinion that there was no evidence that the building was inherently defective, and the Commissioner's submission on this aspect was rejected. Even if there was some defect in the initial construction of the building, the application of the "initial repairs" principle (the Law Shipping case) could not be supported.

The majority of the Board decided that the work performed, although extensive in nature, and despite the use of substituted materials, represented restoration of the building, and that the degree of improvement was not such as to convert the repairs into work of a capital nature.

Mr. R. E. O'Neill, the dissentient Member, was of the opinion that such a positive alteration and improvement was effected as to put the expenditure into the category of expenditure of a capital nature. "The work done was different in degree and kind from that necessary to restore the building to a sound condition by making up for the decay and damage that use and the elements bring about in time."

The Commissioner has appealed to the High Court against this decision of the Board of Review.

The Board decision in this case may be usefully compared with that above (Case 39); different Boards of Review were concerned.

8 C.T.B.R. (N.S.) Case 119

The taxpayer company owned a building, which it used for an industrial process involving a hot and humid atmosphere. The roof was of corrugated iron with a wooden frame and after seventeen years' use had reached such a stage of deterioration as to require attention.

To avoid disruption of the company's production, a new roof of galvanised iron with tubular steel trusses was built over the old one. The increased height of

the roof permitted the installation of louvre windows, and the new roof itself involved improved ventilation. Some months later, the old roof was removed. The taxpayer contended that the sole purpose of the expenditure was to place the roof in proper repair, that any improvement which took place was not sufficient to justify treating the work as being of a capital nature. The Commissioner, on the other hand, submitted that as an entirely new roof had been erected above the old one, and that as no attempt had been made to repair the old roof, the work done was an alteration and improvement rather than a repair.

The Board drew attention to the fact that the company chose to erect a new roof rather than to repair the old roof. The company contended that it was in much the same position as it would have been if the old roof had been repaired, and that it should be treated on the same basis as if that course of action had been adopted.

In *Federal Commissioner of Taxation* v. *Western Suburbs Cinemas Ltd.* (1952) 5 A.I.T.R. 300, Kitto, J., said "When a taxpayer has two courses of action open to him, one involving an expenditure which will be an allowable deduction for income tax and the other involving an expenditure which will not be an allowable deduction, and for his own reasons he chooses the second course, he cannot have his income tax assessed as if he had exercised his choice in the opposite way."

The Board decided that the expenditure was incurred on an alteration and improvement, not a restoration by replacement or renewal, and was thus an expenditure of capital, excluded from deduction by the operation of Section 53.

8 C.T.B.R. (N.S.) Case 132

Taxpayer company, which carried on a retail business in a building some fifty years old, embarked on an extensive building programme which included the demolition of an M-shaped roof and its reconstruction in the form of a single-pitched roof, and the replacement of rotted purlins supporting another roof, and the extension of this roof. Corrugated asbestos cement sheeting was used in place of corrugated iron.

The Commissioner adopted the view that the work carried out was part of a major reconstruction plan from which it could not be isolated, and also that, in any case, the work itself was of a capital nature.

The Board agreed with the Commissioner. The "occasion of the work is not to be found in the desire to effect repairs but rather in that of modernising the building". If a total expenditure is of a capital nature, so is every part of it. In addition, when looked at separately, the work done was not in the nature of a repair, but of alteration and improvement. The new roofs, it was admitted, were better in design and more efficient than those replaced.

The taxpayer company was not therefore entitled to a deduction under Section 53.

8 C.T.B.R. (N.S.) Case 133

Taxpayer leased premises in which he carried on business as a pharmaceutical chemist. The interior fittings of the shop were old-fashioned, the front was dilapidated, the marble stonework was cracked and stained, and the window frames did not fit properly.

Expenditure was incurred on the replacement of the shop front, electrical repairs, painting and plastering. The Commissioner, on objection, allowed a deduction for the painting and plastering only.

The replacement of the shop front consisted of the removal of the windows, including an island window, and of the marble supports, and the installation of two new angled windows. Apart from the window glass, all the materials used were new. To conform with local council requirements a completely new electrical system was installed.

The Board decided that the new shop front and the new wiring represented improvements to a fixed capital asset, consisting of the replacement of practically the entire front of the shop

with a new, better and much more modern front, and the replacement of the wiring with a better, enlarged and modern system. "The work so undertaken did much more than meet a need for restoration."

Mr. H. H. Antcliff, Member, was of the opinion that some part of the expenditure on the replacement of the shop front was of the nature of repairs, for example the replacement of the worn out slab of marble in the doorway or the replacement of the worn out window sashes. However, no apportionment was provided by the taxpayer to the Board, except the suggestion that if any apportionment was made it should be on the basis that at least three-quarters of the total expenditure was of the nature of repairs. However, it was considered that the taxpayer had not discharged the onus of proving that the assessment made by the Commissioner was excessive.

The Commissioner's treatment of the expenditure on replacement of the shop front and the renewal of the electrical system was therefore confirmed by the Board.

8 C.T.B.R. (N.S.) Case 138

Taxpayer owned nine shops from which rental income was derived. The septic sewerage system did not function satisfactorily, and a pump was installed to more effectively deal with the waste. Later, a bore was sunk in an attempt to find a level at which the water would drain away more satisfactorily.

The bore was unsuccessful and was abandoned. Taxpayer claimed a deduction for the cost of the bore, under Section 53 of the Act. The taxpayer's representative claimed that as no enduring benefit had been realised the expenditure was not of a capital nature; if the project had been successful, presumably taxpayer's representative would have regarded the expenditure as one of capital.

In *British Insulated and Helsby Cables Ltd.* v. *Atherton* (1926) 10 T.C. 155, Lord Cave said "But when an expenditure is made not only once and for all, but with a view to bringing into existence an asset or an advantage for the enduring benefit of a trade, I think that there is very good reason (in the absence of special circumstances leading to an opposite conclusion) for treating such an expenditure as properly attributable not to revenue but to capital."

But in *Collins* v. *Joseph Adamson & Co.* (1938) 21 T.C. 400, Lawrence J. said "If the money is spent for the purposes of the trade, and the expenditure would, if successful, produce either a capital asset or an asset of an enduring nature, or an advantage of an enduring nature, it is equally a capital payment if the expenditure is unsuccessful."

Thus, applying the principle that expenditure of a capital nature remains so even if it is abortive, the Board decided that the cost of the unsuccessful bore was not incurred in carrying out repairs, but was an expenditure of capital.

9 C.T.B.R. (N.S.) Case 25

Taxpayer company replaced the ceilings of two picture theatres, and lattice ceiling and joist supports were removed and replaced with fibrous plaster sheets on new supports. Ceiling joists were removed and replaced, the new joists being spaced closer than the previous ones, to provide a more rigid and durable support for the ceiling.

The Board was of the opinion that the work consisted of the replacement of the whole ceiling, which was a major part of the structure of the theatre, that a new and better ceiling had been constructed. Consequently, it was decided that the expenditure was of a capital nature, not allowable as a deduction under Section 53.

9 C.T.B.R. (N.S.) Case 37

Taxpayer company carried on business as importers and distributors of motor vehicles. The roadways around the buildings used as workshops consisted of two inches of metal foundation, surfaced by two inches of a mixture of metal and bitumen.

As a result of heavy rains, the foundations of the driveways were weakened,

and the bitumen surface crumbled and disintegrated as a result of its use by heavy vehicles.

The company decided to restore the surface of the driveway by excavating the bitumen surface, rolling the metal base, and installing about four inches of reinforced concrete. Underground drains were also installed.

The Board of Review was of the opinion that the work carried out was not in the nature of a repair, but the substitution of one type of roadway for another, with the intent that the new material would be more satisfactory than that provided by the bitumen surface. It was agreed that the substitution of one material for another is not, of itself, fatal to a claim for deduction under Section 53; however the selection of material is not decisive of the matter one way or the other.

It was apparent, however, that the taxpayer considered that a reinforced concrete surface would be more satisfactory in that it would withstand the effect of heavy vehicular traffic above and the ravages of a rising water table below. The fact that a concrete surface had a better surface than the bitumen was also a reason for the performance of the work. The decision of the Board was therefore that something essentially different and functionally more satisfactory had been produced, which did not constitute a repair.

Lindsay v. Commissioner of Taxation (1960) 34 A.L.J.R. 239

Taxpayer was a member of a partnership which conducted a business of ship repairing on the Brisbane River. Two slipways were owned by the partnership, on one of which, in 1955, substantial work was done to attend to deterioration which had first become noticeable during World War II.

The work consisted of the removal of longitudinal runways, rails and supporting headstocks, the insertion of concrete members of larger dimensions than the wooden ones they replaced, and the use of new rails and tracks for the cradle which carried the ships to be repaired.

The High Court (Kitto J.) summarised the question of deductions claimed for repairs to income-producing property, thus: "The problem is to characterise the expenditure according to the familiar distinction between repair, in the sense of restoration by renewal or replacement of subsidiary parts of a whole, and renewal in the sense of reconstruction of the entirety, meaning by the entirety not necessarily the whole but substantially the whole of the subject matter under discussion. The application of the distinction is often doubtful, and depends very much upon what is properly to be considered, in the circumstances of the case, to be the relevant entirety."

The taxpayer contended that the relevant entirety was the whole of the partnership's premises, and that the slipway renewed should be regarded as only a subsidiary part of the premises, and therefore that the work done was a repair to "part of premises" within the meaning of Section 53.

The court considered, however, that the slipway should be treated as an entirety by itself, and not as a subsidiary part of anything else. "It is separately identifiable as a principal item of capital equipment."

The fact that timber construction was replaced by concrete was not regarded by the court as a decisive feature, nor were other differences in the renewed slipway brought about by the use of this different material. In fact, it was stated that even if the renewals had been made of timber, the court would still have been of the opinion that substantially the whole of the old slipway had been demolished, and that a new slipway had been constructed, in other words, that renewal of an entirety, and not repair, had taken place. The only components which were not renewed were most of the piles supporting the old structure.

The Court decided therefore that the partnership was not entitled to a deduction under Section 53 for the cost of renewing the slipway.

* * * * *

The pre-requisites to a claim for a deduction under Section 53, which were

restated and exemplified in the cases reported above, may be summarised as follows:

1. The work done must, on the facts, be restoration by renewal or replacement of subsidiary parts of an entirety, not the renewal of the entirety itself.

2. If, on the facts, the work done represents an improvement, it may be treated as an expenditure of a capital nature, not allowable under Section 53.

3. The fact that renewal or replacement involves the use of different, perhaps more modern, or better, materials does not of itself lead to a conclusion that the work done is an improvement, and not a repair.

4. Repairs may be done at the same time as improvements, and an apportionment of the expenditure may be appropriate to determine what part is allowable under Section 53 and what part is an expenditure of capital.

5. A deduction for repairs cannot be allowed of an amount which would have been expended on repairs if repair, and not improvement, had actually taken place.

6. Ownership of the property repaired is not necessary, but the property must be held occupied or used by the taxpayer in the course of income-producing activities.

Notes on Selected Tax Cases

By D. C. WILKINS, B.Com., A.A.S.A.

COMMISSION FOR ARRANGING LEASE

Commission paid to a broker for arranging the lease of a hotel was treated as an expenditure of capital, not allowable under Section 51 of the Income Tax Assessment Act.

The freehold of hotel premises was owned by taxpayer and two others. A lease was granted to a tenant for a period of three years, and the furniture and equipment was sold to the tenant.

A hotel broker, who attended to the lease and sale on behalf of the partnership, charged commission as follows:

5% of consideration for furniture (£2,000)	£100
3% of total rental payable under the lease £4,940)	148
	£248

The Commissioner, subsequent to taxpayer's objection, allowed a deduction for the commission paid on the sale of the furniture. The disallowance of a deduction for the commission relating to the lease was the subject of a reference to the Board of Review [8 C.T.B.R. (N.S.) Case 142].

The Board shortly disposed of the taxpayer's claim. It was pointed out that losses and outgoings which may otherwise fulfil the requirements of Section 51 would not be allowable as a deduction if they are an outgoing of capital or of a capital nature.

The lease, in the present instance, is the "profit-yielding subject" and the rental is the yield resulting from the process of operating the lease.

The cost of arranging the lease was regarded as a cost of establishing the profit-yielding subject (the lease) and was, therefore, an outgoing on capital account. The fact that the calculation of the commission was based on the total rent for the period of the lease did not affect the principle enunciated.

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HIRE-PURCHASE ACT, 1960 (N.S.W.)

ANNOTATED AND EXPLAINED

Together with a comparative table of sections of the various Hire-Purchase Agreement Acts of the Australian States

THIRD EDITION

By

THE HONOURABLE R. ELSE-MITCHELL

A Judge of the Supreme Court of New South Wales

and

R. W. PARSONS, B.A., LL.B.

Barrister-at-Law

Associate Professor of Commercial Law, University of Sydney

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DIVIDENDS FROM SINGAPORE

Income received by a beneficiary of a deceased estate consisting of dividends from a Singapore company were held, by the Board of Review, to be exempt from Australian tax by the operation of Section 23 (q).

The taxpayer, who was a resident of Australia, and her two brothers, were the life tenants of the estate of their father, who before his death lived in Singapore. The income of the estate was derived from shares in a Singapore company.

It was arranged that the company should pay directly to taxpayer her one-third share of the dividends payable to the estate. The company paying the dividends was entitled, under the Singapore Income Tax Ordinance, to deduct from the dividends tax at the rate payable on the profits out of which the dividends were paid, and a certificate showing the amount of dividends paid and the tax deducted was sent direct to the taxpayer. Although the taxpayer was not the shareholder, this action was taken by the company because of the arrangement mentioned above.

Section 47 of the Singapore Income Tax Ordinance provides that the income of a wife living with her husband is deemed to be income of the husband, and, if necessary, the tax charged to him can be recovered from the wife. Accordingly, the taxpayer's husband furnished a return to the Singapore tax authorities which included the Singapore income derived by his wife.

In this return, the dividend income was included at the gross amount before deduction of Singapore income tax, the tax assessed was offset against the tax deducted from the dividends, and a repayment was made direct to taxpayer of the excess of tax deducted over tax assessed.

Before the Board of Review, in 9 C.T.B.R. (N.S.) Case 2, it was agreed that Section 44 of the Income Tax Assessment Act had no application to the income derived by the taxpayer, as she herself was not a shareholder in the Singapore company.

The question to be considered, therefore, was whether the income derived by the taxpayer as a beneficiary in the estate was exempt from Australian income tax by reason of the application of Section 23 (q), which provides for the exemption of "income derived by a resident from sources out of Australia, where that income is not exempt from income tax in the country from which it is derived".

The Commissioner contended that the provisions of Division 6 (Trustees) were exclusive in fixing liability upon the taxpayer as a beneficiary in the estate, and that no other provisions of the Act should then be considered. This contention the Board rejected; Division 6 should not be read as paramount to and independent of the rest of the Act.

It was then submitted by the Commissioner that the exemption from Australian tax provided by Section 23 (q) did not apply because the taxpayer was not herself subject to Singapore tax on the income received from the estate, and therefore her income should be regarded as exempt from Singapore tax.

The Board disagreed also with this view. Section 23 (q), it was stated, is concerned with whether the income itself is not exempt from tax in the country of source, and that the income is derived by the resident from the ex-Australian source. The fact that, for the purposes of assessment of Singapore tax, the income was deemed to be income of taxpayer's husband, does not mean that, as far as taxpayer is concerned, the particular income had not been subject to Singapore tax. It was more correct, the Board considered, for the income received by her to be treated as income charged to tax in Singapore; the fact that she received the appropriate refund supported that conclusion.

The Commissioner finally contended that the proviso to Section 23 (q) operated

to debar the application of the exemption. This states: "Provided that this paragraph (Section 23 (q)) shall not apply to exempt any income unless—(a) where there is a liability for payment of income tax in the country where that income is derived—the Commissioner is satisfied that the tax has been or will be paid." The Commissioner pointed out that there was no liability for payment of tax in Singapore, and therefore the Section 23 (q) exemption should not apply.

The Board decided that either there was a liability for Singapore tax and the liability was met by the deductions made from the dividends, or that no liability for payment of tax existed at the time of applying Section 23 (q) because the deductions made had satisfied that liability. In either case, the proviso to Section 23 (q) could not operate.

It was decided, therefore, that the Singapore income from the estate derived by taxpayer was exempt from Australian tax in accordance with the provisions of Section 23 (q).

AWARD TO PROFESSIONAL FOOTBALLER

A television set awarded by a newspaper to a professional footballer was included in his income subject to income tax.

The Board of Review, in 9 C.T.B.R. (N.S.) Case 3, had to consider the difficult question of whether a voluntary payment made to an employee by a person other than his employer, related in some sense to the services he performs, should be treated as his assessable income.

The taxpayer was employed in the metal trade and earned other income from casual employment and as a professional footballer. He was under contract to a football league, and was paid a guaranteed sum or a player's bonus by the club for which he played.

A newspaper announced that a competition would be conducted during the football season, and that a television set would be awarded each month to the player selected by judges as the best and fairest player during that month. Taxpayer received one of the television sets, valued at £150.

The Chairman of the Board said that the question to be asked was "Was the award received by the taxpayer a gift of a personal nature or did it in the circumstances of the case constitute an additional reward for the services rendered by him as a professional footballer?"

The Board considered in detail the various aspects which affect the decision to be reached in a case such as this, and the facts of various similar or dissimilar cases considered by the Board of Review or the court. By majority, it was then decided that the award made to the taxpayer came to him as an incident of his employment as a professional footballer, was related to his income producing activities and so should be included in assessable income.

The award was not personal to the taxpayer, but his entitlement to it accrued concurrently with the playing of the football matches required by his contract. The fact that it was not of a periodic or recurrent nature and that it came to him from persons other than those to whom he was under contract did not affect its assessable character. The receipt was likened to the collections on the field received by the cricketer, Bruce Dooland, or the Christmas gifts received by the huntsman Wright, both of which (in English tax cases) were treated as income subject to tax.

Mr. R. E. O'Neill, Member, in a long and detailed examination of the problem, came to a different conclusion. He considered that, having regard to all the circumstances, the property received by the taxpayer could not fairly be said to be a product of his income earning activities, but was a fortuitous addition to his assets, a windfall lacking the elements of earnings or remuneration.

The Commissioner's decision was therefore confirmed by the majority decision of the Board.

Recent Legal Decisions

By L. C. VOUMARD, B.A., LL.B.

Who is a Worker?

> *The test commonly applied to determine whether a person is a "worker" for the purposes of Workers Compensation legislation rests largely on the question whether or not he is a servant; whether his employer possesses a sufficient degree of control over him to produce between them the relationship of master and servant. The Judicial Committee of the Privy Council has held that a person who is the governing director of a company, and its controlling shareholder, can yet be a servant of the company, and thus a "worker".*

This decision was given in *Lee* v. *Lee's Air Farming Ltd.* (1960) 3 W.L.R. 758, which was an appeal from the decision of the Court of Appeal of New Zealand.

L had formed a company to carry on the business of aerial top-dressing. He was the controlling shareholder and, by the articles, the sole governing director of the company, with the usual extensive powers of such a person. He was employed by the company at a salary as the company's chief pilot — a contract negotiated, naturally enough, by him, as agent of the company, with himself. Naturally enough, too, he was able to exercise complete control over the company's operations, in his position of sole governing director and controlling shareholder.

While carrying out aerial top-dressing operations, the plane he was piloting crashed, and he was killed. The company had effected a policy to indemnify it against its liability to pay workers compensation and as there was no doubt that his death arose out of his employment, his widow claimed compensation. Her claim was resisted on the ground that her deceased husband was not a "worker" employed by the company within the meaning of the Workers Compensation Act 1922 (N.Z.). That Act defines "worker" as "any person who has entered into or works under a contract of service . . . with an employer . . . whether remunerated by wages, salary or otherwise."

The New Zealand Court of Appeal held that he was not a worker, because on the facts he could not be a servant of the company. He had both the duty of giving orders and obeying them — two incompatible offices. The company had no control over him, and the absence of control was fatal to the existence of a master-servant relationship between the company and him.

The Judicial Committee reversed this decision, and held that the deceased was a "worker". In reaching this conclusion the committee emphasised that the deceased and the company were separate legal entities, and from this several important consequences followed. In the first place the deceased's position as sole governing director did not make it impossible for him to be a servant of the company in his capacity of chief pilot, because, being separate legal entities, he and the company could enter, and in fact had entered, into a valid contractual relationship. And this relationship was not invalidated by the fact that the deceased was sole governing director in whom happened to be vested the complete government and control of the company, as well as being the major shareholder. In the second place, the fact that they were separate legal entities enabled the company to give orders to him. The committee saw nothing incongruous in the possibility that one person may function in dual capacities, and acting in one capacity give orders to himself in another capacity.

For these reasons the conclusion was that the relationship between the company, and the deceased in his capacity as chief pilot, was that of master and servant; a contract of service existed

and operated between them, and the deceased was a "worker" within the meaning of the Act. So his widow was entitled to the compensation she claimed.

Ultra Vires Transactions

Although the doctrine of ultra vires *will be very greatly modified as regards companies if the provisions of the Draft "Uniform" Companies Bill become law in their present form (see clause 20 of the Bill), this modification will only apply as regards companies registered under the Companies Act. In other respects the doctrine will continue to exist in its present form, and a recent Canadian case illustrates an attempt to rely on it by way of defence to an action brought by a corporation incorporated by special Act of Parliament.*

The case is *Emco Ltd.* v. *Manitoba Health Service* (1960) 24 D.L.R. (2d) 258, a decision of the Manitoba Court of Appeal. There, a statutory corporation, promoted by the medical profession, and incorporated by special Act as a non-profit-making corporation, was established to provide medical and hospital care to certain persons. The corporation entered into a contract to purchase some land for the purpose of its business, and when the vendor defaulted, the corporation sought a decree of specific performance of the contract. By way of defence the vendor took the point that the corporation lacked power to purchase land, and that the contract was therefore *ultra vires* the corporation. This defence succeeded before the trial judge, but on appeal the Court of Appeal, by a majority, reversed his decision, and decreed specific performance.

It was conceded that the corporation had no express power to acquire land, but it was common ground that the corporation did require office space on which to carry on its operations. The question, therefore, was, did the Act incorporating the corporation impliedly authorise the purchase of land as being something necessarily or reasonably or fairly incidental to its objects? That such a purchase would be *convenient* was not disputed, but mere convenience is not enough; to imply such a power it has to be shown that its exercise is *incidental* to the corporation's objects as well.

The majority took the view that having regard to the nature of the corporation and its business, it was clear that it did require premises to carry on its business. It was admitted that the corporation could validly lease property, so that there was no reason why it should not equally well purchase property. And since it could own property there was no real reason to limit the mode of acquiring that property so as to exclude acquisition by purchase. Hence it followed that the contract to purchase the land was not *ultra vires*, and specific performance was ordered.

In arriving at this conclusion the majority affirmed the proposition that the doctrine of *ultra vires* is to be understood and applied reasonably, and that "whatever may fairly be regarded as incidental to, or consequential upon, those things which the Legislature has authorised, ought not (unless expressly prohibited) to be held, by judicial construction, to be *ultra vires*."

Professional Indemnity Insurance

Halford v. Price (1960) *A.L.J.R.* 105, *which is a decision of the Full High Court, was concerned with the interpretation of an indemnity clause in a profesional indemnity policy issued to a firm of solictors.*

A and B were partners as solicitors, having entered into partnership as from 1954. In September, 1956, they took out a professional indemnity policy with an insurer for £15,000, against claims which might be made against them during the year, 13 September 1956, to 13 September 1957. One of the questions on the proposal form asked whether any such claims had been made against the firm or any of its partners. This was answered in the negative, but the answer

added that a claim might possibly be made against B for an alleged negligent omission to take certain steps in a matter which he handled before becoming a partner. Before the policy expired in 1957 such a claim was in fact made against B, and he claimed to be indemnified against it in terms of the policy. The difficulty was that it arose out of something which occurred while he was practising on his own account, so the question was, did the indemnity granted by the policy cover a claim, made within the indemnity period, against one of the insured if the claim arose by reason of a negligent act of omission committed before the partnership began?

The answer depended on the interpretation of the insurance documents. By the policy, the insurer undertook to "indemnify the firm against any claim . . . for breach of professional duty . . . which may be made against them during (the period of insurance) by reason of any negligent act, error or omission, whenever or wherever the same was or may have been committed or alleged to have been committed on the part of the firm . . . or any person now or hereafter employed by the firm during the continuance of this policy, in the conduct of any business conducted by or on behalf of the firm or their predecessors in business in their professional capacity . . ." The "firm" was defined to include A and B "and any other person or persons who may at any time and from time to time during the subsistence of this policy be a partner in the firm or any one or more of them."

The repeated reference to the "firm" as the subject of the indemnity was ambiguous, and the insurer claimed that the policy was not such as to indemnify B against a claim made against him for a member of the firm, but by a majority something done by him before he became of four to one the High Court held that on its true construction the policy was wide enough for this. Consequently B was entitled to indemnity under the policy.

Recovery of Agent's Commission

> *On one view of it, the contract which provoked the litigation in* Drewery & Drewery *v.* Ware-Lane (1960) 1 *W.L.R.* 1204 *was somewhat ingeniously worded, such as to prompt the trial judge to suggest that persons asked to sign a contract in such terms might be well advised to seek legal advice before doing so (although since not too many intending vendors of land read the Law Reports this warning may not reach a wide audience).*

The owner of a leasehold interest had instructed estate agents to sell the property for him. On 3 January they informed him that an offer to buy the property had been received from S. The owner agreed to accept the offer, and thereupon was handed two documents on printed forms, prepared by the agents, to read and sign, which he did. The first document was called a "letter of authority". Clause 4 of that document ran: "I agree to pay you commission (at a certain rate) if and when (a) a prospective purchaser signs your 'purchaser's agreement' and (b) I sign your 'vendor's agreement'." The second document the owner signed was the "vendor's agreement". On the same day S signed the "purchaser's agreement". At that stage, therefore, it seemed that the two conditions (a) and (b) mentioned in the "letter of authority" subject to compliance with which commission was payable, had been complied with.

S, however, was unable to purchase without obtaining a mortgage, and he delayed in applying for a mortgage pending the outcome of negotiations to acquire the freehold of the property. This delay did not appeal to the owner, who informed the agents, on 12 January, that as no progress had been made with the sale to S he had disposed of the property to some other person. S later bought another property, and dropped out of the picture.

But the agents then claimed their selling commission from the owner. Not unnaturally he resented this, because the

sale to S had fallen through, but the Court of Appeal, affirming the trial judge, held that he had to pay. The two conditions mentioned in the "letter of authority" had been complied with, and the contract between the owner and the agents constituted by that document was in clear and unequivocal terms. The commission was payable when a *prospective* purchaser signed the "purchaser's agreement", and this had been done. A "prospective purchaser", as distinct from a "purchaser", did not necessarily connote a person ready, willing and financially able to purchase; the expression referred to a person who had the question of purchase in *bona fide* prospect, and was prepared to make an offer, although he might never advance to the stage of becoming a purchaser. On the evidence, S was a prospective purchaser, and so, with some regret, the decision was that the commission became payable on the signing of the relevant agreements.

Repairer's Lien Over H.P. Goods

The question in the Victorian case of Lombard Australia Ltd. *v.* Wells Park Motors Pty. Ltd. *(1960) V.R.* 693 *was whether the hirer of a motor car under a hire purchase agreement could create a lien over it in favour of a repairer, which lien would prevail against the owner.*

In May, 1959, the plaintiff let a car on hire purchase to X. The agreement provided, *inter alia,* that the hirer should not create or allow to be acquired any lien on the goods; that he would at his own expense keep the goods in good repair and condition; that he should not have any authority to pledge the credit of the owner or to create any lien on the goods for repairs or otherwise; and that nothing in the agreement should be deemed to create any such authority.

With the consent of the plaintiff-owner, X later assigned his interests under the agreement and in the car to Y. Thereafter the car broke down, and Y had repairs effected by the defendant, the latter being unaware that the car was the subject matter of a hire-purchase agreement. Later, the plaintiff terminated the hiring because of Y's non-payment of instalments, and sought to repossess the car from the defendant. The defendant, however, declined to deliver up the car, claiming a lien over it in respect of the cost of the repairs.

The Supreme Court (Herring, C. J.) held that no right of lien arose in favour of the defendant. Applying the Australian decision in *Fisher* v. *Automobile Finance Co. of Aust. Ltd.* (1928) V.L.R. 131; 41 C.L.R. 167, his Honour held that in order to justify such a lien against the owner the repairer had to show an authority from the owner to the hirer who had left the chattel in question to create such a lien. Such an authority could be conferred by an express or an implied agreement, or the owner might in some way be estopped from alleging the hirer's want of authority, but the mere fact that the hirer had the continuous use and possession of the chattel was not sufficient to infer that such an authority existed.

Here, the hirer had no express authority, and it was clear from the terms of the agreement that he could have no implied authority either. Nor was there anything else from which an authority could be inferred — rather the reverse, in fact, because the defendant was not aware until well after the event that Y was not the owner. Hence no lien arose, and the plaintiff obtained judgment for the recovery of the car.

It was an unfortunate result for the defendant, although since the coming into force of the Hire-Purchase Act 1959 (Vic.) this position is overcome (Sec. 28 entitles the repairer in certain circumstances to a lien, which is enforceable against the owner unless the hire-purchase agreement, *to the repairer's knowledge,* prohibits the creation of a lien by the hirer). But that Act could not help Wells Park Motors Pty. Ltd., as it only came into force after the relevant hire-purchase agreement had been entered into, and it applies only to hire-purchase agreements entered into after the commencement of the Act.

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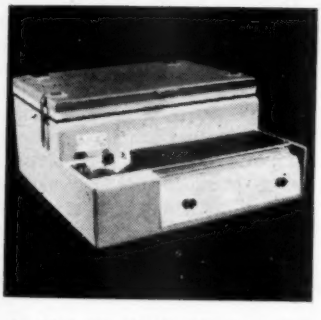

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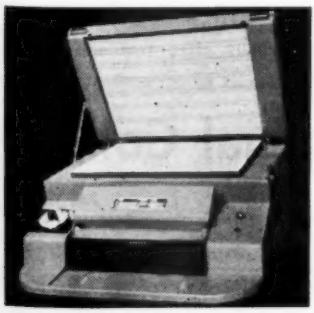

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Current Problems Discussed in Overseas Journals

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Accounting Principles

In an article in *The Journal of Accountancy,* October, George R. Catlett discusses "Factors That Influence Accounting Principles". He points out that conservatism, disclosure and governmental regulation have all had an important influence on accounting principles, but they have also sometimes been used to justify unsatisfactory accounting practices. He submits that sufficient recognition has not been given to changes in economic and social conditions or to the purposes for which accounting is intended. He advocates an objective approach by the profession to the development of accounting principles, and suggests that the risk involved in a positive and constructive course of action is far less than that in not assuming the necessary leadership.

Accounting Reports

In an article entitled "The Principles Affecting the Design of Companies' Reports — 1", in *The Accountant's Magazine,* October, W. R. S. Ritchie raises some important queries about current practices in company reporting. In this first part, he concentrates his discussion upon stock with some emphasis upon the effects on profit of different methods of estimating value of stock (including work in progress), and makes a passing reference to depreciation.

In *The Canadian Chartered Accountant,* October, William W. Werntz discusses "What Financial Statements Do Not Disclose". He concludes by submitting that accountants must resist proposals and efforts to expand financial statements beyond their natural function; but that on the other hand accountants must make sure that the presentation of data in financial statements continues to improve and must adapt themselves to the changing times which the free world will ever face.

Three articles in the *N.A.A. Bulletin,* October, deal with reporting to management. The need for the "forward look" in reporting is emphasized by R. P. Keehn "Providing Management with a Sense of Direction through the Reporting System". W. R. Riekert explains "The Feedback Aspect of Reporting", which provides not only a measurement of progress but also a guide to decisions regarding the future. The preparation of reports on labour performance is the theme of R. Slager's article entitled "A Procedure for the Centralized Gathering and Processing of Labour Data".

Depreciation

A method of exercising a continuing control of depreciation accounting through the use of statistically estimated "reserves" is described in the *N.A.A. Bulletin,* October, by J. P. Vogel, "Controlling Depreciation Charges on Mass Properties — A Punched Card Statistical Procedure". The accuracy of the method depends primarily on the validity of mortality studies which determine the retirement characteristics and the average life of the property.

Distribution Costs

Under the title "Don't Neglect Half the Costs", *Cost and Management,* October, Harold W. Fox suggests that accountants should, in future, devote to

analysis and control of marketing and distribution costs similar attention to that given to production costs. He presents a classification of accounts and ideas for an approach to make a significant contribution to company efficiency by enabling clear-cut decisions to be reached as to relative merits of alternative distribution channels and methods.

Inventory Control

The *N.A.A. Bulletin,* October, presents two case studies on inventory control. E. B. Perry provides a study on the "Retail System of Inventory Recording and Reporting", while J. W. Bell presents "Brewery Inventory Control with Electronic Data Processing".

Labour

In the *N.A.A. Bulletin,* October, J. T. Malley, "Overtime or More Help? — A Check List of Factors to Consider", considers many aspects of this problem, and suggests some preponderant factors which should not be overlooked or underestimated.

Public Accounting

"The Changing Image of a Profession" is the title of an article in *The Journal of Accountancy* for October by Charles P. Rockwood, Director of Public Relations of the American Institute of Certified Public Accountants. He compares surveys made in 1947-48 and 1957-59 regarding the public understanding of accounting and the role of the C.P.A. The recent surveys show that most businessmen now rank C.P.A.'s at the top of the list of outside specialists in terms of their value to their companies. On the other hand there are many misunderstandings and problems which have still to be solved.

Research Costs

J. B. Quinn, in an article entitled "Control of Research and Development Costs" in *The Journal of Accountancy,* October, submits that, while actual expenditure for research and development usually varies only slightly from the budgeted figures, this is not necessarily a sign that the programme is proceeding efficiently. He suggests that it is doubtful whether any financial formula is valid for deciding how much to spend on research or measuring the output of past programmes.

Return on Investment

"Measuring Rate of Return on Capital Investments" is the title of an article by John H. McArthur in *The Canadian Chartered Accountant* for October. The author states that his primary purpose is "to open to question" the statement that discounted cash flow is the only scientifically accurate method of determining the rate of return on a new capital addition and also to point out that this method may be inaccurate as commonly used. He mentions other methods of analysis which he considers to be more generally useful. He points out that none of these quantitative methods is purported to take into account everything known about the real world, but suggests that a real effort should be made to determine the extent to which these developments can be used to make more effective decisions.

Slide Rule

"It is a surprising fact that so few accountants make use of slide rules", reads the opening of a contributed article, "Business Slide Rules", in *The Accountant,* 3 September. The author discusses the advantages to be gained from their use, and considers the important question of their accuracy. He suggests that accountants should obtain slide rules specially made for commercial work and not take those made for engineers. The various makes of slide rules on the market, suitable for accountants, are compared.

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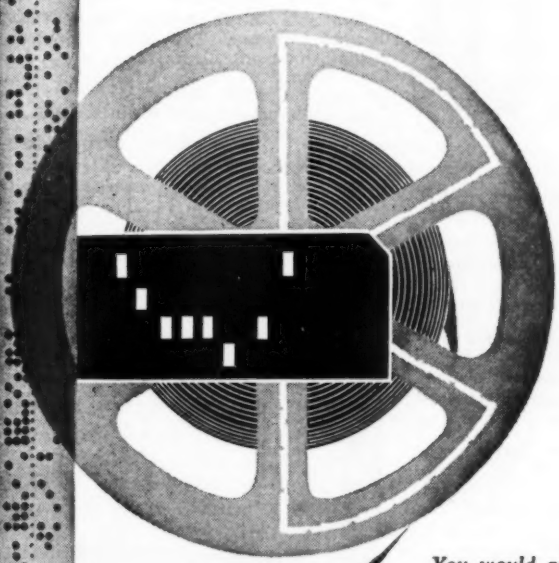

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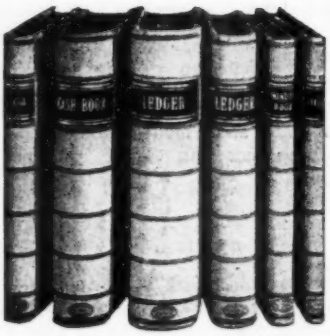

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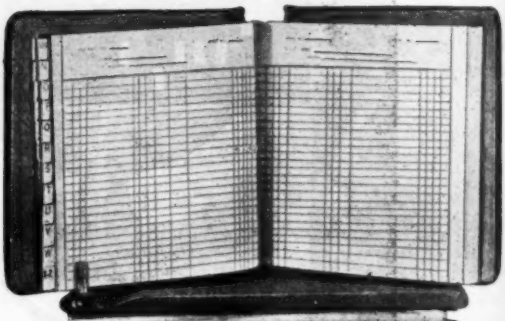

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Operations Research — A Challenge to the Accountant*

By W. A. DICK, B.COM., A.A.S.A., A.C.A.A.,
Partner in Charge, Administrative Services Division, Fuller, King & Co.

OPERATIONS research is the application of scientific method to the understanding and solution of business problems. The purpose of this paper is to study the nature and elements of business decisions and the important contribution which the concepts and techniques of operations research can make in this increasingly important area of management. I would like to relate this to the need for the accountant to broaden the services which he is capable of rendering to management in the making of decisions which will dictate the profitability of the undertaking which he is serving.

DOES THE MODERN EXECUTIVE NEED HELP IN DECISION-MAKING

The consequences of the increasing complexity, size and rapidity of modern business life are tension, neurosis, ulcers and other hazards of executive life. I would like to discuss here the diagnosis and treatment of the business problems which are the root cause of executive ailments. Although the executive has more to worry about today than ever before, it is not the rising volume of paperwork and routine which is causing the damage, but rather the responsibility of making business decisions and, more importantly, the best decision from a mass of conflicting opinion and evidence on the one hand and shortage of facts on the other. The consequences of wrong decisions in business can be severe and any concept or technique which can help business men improve their batting average in meeting their problems will make a material contribution to the welfare of their businesses, their own health and the economic state of the nation.

We are forced into the making of decisions when two things are present:

ACTION — A decision problem is one involving a course of action and not a matter of satisfying curiosity. The problem situation never calls for a decision unless action can be taken. It has often been said that all our problems can be divided into two groups — those we can do something about, and those over which we can have no influence whatsoever. We would be well advised to concentrate operations research work in the former area.

2. ALTERNATIVES — A decision problem exists only when more than one course of action is available. If management has only one course of action open to it, no decision is necessary.

Therefore, decisions imply that we have various alternative courses of action open to us from which we want, wherever possible, to select the one which will go closest to meeting our objectives.

How do we go about making decisions? Do we really assess all the alternative courses of action that are practicable to us, and do we make our decision with our end objectives clearly in mind. Do we get all the facts which we should have before we make the decision? How do we weigh the facts that we do get to determine which course of action yields the greatest benefits? Although we would

* Based on a series of lectures given by Mr. Dick to members of the Society in Tasmania during September, 1960.

like to think otherwise, most decisions are made intuitively and emotionally, whether they be in our personal lives or in business. Few of us manage to be objective and logical in solving our problems.

We all know of one-man businesses which have been built into successful organisations by the process of intuition and rule-of-thumb decisions. Up to a particular size of business, this can pay off fairly well in the hands of a competent man because one person can carry in his head many factors, or certainly the important factors, affecting his business, and may well keep up-to-date with the changes going on around him. He can grasp the full importance of a particular situation, make his decision, and see that it is carried out.

But an increasing proportion of the economic life of our country comprises organisations which combine the specialised skills and knowledge of a number of individuals, all with responsibilities and powers of decision within their particular scope of activity, and all working, or supposedly working, towards a common objective. Business is becoming increasingly segmented. There is more and more delegation of responsibility and authority for making decisions and taking action. In so breaking up the business into parts, it becomes increasingly difficult to mesh the parts one with another. The decision which is good for the sales division may be wrong for production and wrong for finance. How often do we find this in an inventory situation where different sections pull against one another.

The desire to maintain a high level of service to customers or distributors, to avoid fluctuations in production workload, and to avoid frequent set-up costs must be weighed against the costs and risks of large stocks. These objectives tend to tie up money that might be put to better use in other company activities.

In these circumstances, the rule-of-thumb, intuitive, emotional decision has little hope of being the best answer to the situation. In a business where the functions are divided, there are no criteria for arriving at the best decision for the business as a whole. By the time you add up the intuitive and emotional decisions throughout such an organisation you can have on your hands one glorious human relations and personnel problem. In these circumstances, there is an ever-increasing need for study and analysis of the costs and benefits involved in business problems in such a way as to highlight significant alternative decisions, the relevant facts and the likely end result of each alternative, taking all important factors into consideration.

THE LAW OF THE SITUATION:

Mary Parker Follett, a psychologist who changed the management outlook on leadership, many years ago showed that the really effective leader in management worked through the law of the situation, and not by autocratic and authoritative methods of decision making, which so often ignore and are in conflict with the real situation or problem. She proved conclusively that an executive functions more effectively as a leader if, instead of ordering people to do things because of some divine authoritative right, he works through the "law of the situation". This implies defining and clarifying the situation, envisioning what needs to be accomplished so that goals can be realised by participation, rather than force, and co-ordinating the action.

It is not only sound from a human relations viewpoint to implement decisions by working through the law of the situation, but it is also sound to base decisions on the true law of the situation. This is the complete opposite to rule-of-thumb, emotional decisions, and can be considered the fundamental principle of sound management.

The Rational Approach to Decision Making

Whatever the techniques adopted the approach used should be on the following lines:

1. Define objectives. What are we trying to accomplish? Is lower cost, higher profit or return on investment the main objective? When we come to make a decision on a limited problem which only involves part of our activity, we must be sure to see it in its relation to other functions or parts of the whole. We must be sure that we set objectives for the individual decisions which will be in keeping with our desire to maximise the overall return.

2. Define the problem and state it clearly. Many decisions resolve themselves if the problem can be stated clearly.

3. Recognise all the elements involved in the problem — controllable and uncontrollable — those which are and those which are not significant. What are the things which will have the greatest influence on the effectiveness of our action? If we are trying to maximise profits from a small shop, we can isolate numerous factors, such as the weather, day of the week, the time of the year. We cannot control the rate at which we sell merchandise, but we can display it, advertise it, keep adequate variety of stocks, serve our customers in an attractive and efficient manner, and many other things.

   The Chief of the Fire Brigade has a different decision making problem. Naturally, the likelihood and probability of the occurrence of fires is most important, but this is uncontrollable. How he copes with the fires which arise will be determined by the number of men and the equipment he has available to fight the fires. How many men do we need to have on the payroll of fire stations, and how much equipment in order to be reasonably sure that we will have the right number of men to ride to the fires which occur? We can control the duties which the men perform, other than riding to fires, we can control leave to some extent, and off-duty periods can be organised. Sickness and accident will affect the situation.

   If the decision making involves inventories, we will endeavour to minimise the inventory costs commensurate with a given standard of customer service. The time when we place an order to replenish our supplies will depend on how much we expect to use whilst we are waiting for the replenishment, which in turn, will be determined by the time it takes a supplier to deliver or fulfil the order and the level of customer demand or usage during that period.

   In these examples the courses of action are limited by the resources at our disposal. Some of the elements are controllable by us, others are completely uncontrollable. But in all instances, we try to analyse the problem so as to isolate all the elements.

4. Determine how these elements are interrelated, so that we can develop a method of predicting the extent to which various possible solutions to the problem will accomplish our objectives. For example, if we are trying to get the most from an advertising programme, we must have some method of predicting what the profits will be if a certain amount is spent for newspaper advertising, or what the level of sales would be if a certain amount is spent on television or magazine advertising. The more we can compare alternative solutions (in terms of contribution towards the chosen objective) by predicting their effectiveness quantitatively, rather than by rule-of-thumb, the better will be the information on on which the decision will be based.

5. Find the best solution. There are various ways of arriving at these decisions and following out the course of analysis and synthesis which I have suggested. The mere statement of a problem may suggest the answer — no other techniques will be necessary. I think we can all find instances of this in our business and private life where, once we have been able to recognise all the aspects of the problem, the appropriate answer has presented itself. We can use simple or complex methods, depending on the importance of the decision concerned and the degree to which we can control the situation once we have analysed and evaluated it.

   On the one hand we can juggle the facts with pencil and paper and a little mental arithmetic and at the other extreme, we can use operations research which uses mathematics, statistics, economics and other disciplines to evaluate the effect of alternative courses of action. Less formal techniques frequently leave open the possibility that a better solution exists which has not been tested.

   The tools available for making our decisions include the analysis and estimation with pencil and paper, use of traditional accounting methods, use of industrial engineering techniques and operations research techniques.

   The method which we choose should be the one most suited to solve the problem in the light of the cost of the research on one hand and the likely results on the other.

WHAT IS OPERATIONS RESEARCH?

During the World War II the Allied command was plagued by limited resources. With limited radar equipment it had to make vital decisions on how Britain could be best protected from Nazi bombing raids by locating radar so as to achieve maximum effectiveness in air raid warnings. How could Allied

naval and air forces be best employed to fight the U-boat menace? What bombing patterns were likely to achieve the greatest effectiveness when the assault on Germany started? Scientists were called in to assist — physicists, mathematicians, economists and many others, to supplement the traditional way in which the Armed Forces had solved similar problems — namely past experience. They developed a means of analysing the alternatives in all of these problems, so that the maximum use could be made of the limited resources available.

After the war, this experience was turned to industrial problems where, after a slow start, a great deal of experience has been amassed.

INDUSTRIAL APPLICATIONS OF O.R.

The function of operations research deals with overall company problems as well as limited departmental activities, although its most favourable application is in the former area. Typical problems include:

How must money should the company tie up in inventory?

To what extent should larger orders be issued to take advantage of quantity discounts?

How can plant capacity be fully utilised and a stable labour force maintained economically in the face of uncertain or highly seasonal demand? It is possible to develop the lowest cost producing plan starting with a sales forecast, available plant capacity and the tangible cost factors.

How should a variety of products be scheduled through a production system involving many different machines and processes? Where a number of jobs can be run on a number of different machines, it is possible to determine how to best allocate the work to the machines so as to minimise either the total time or total cost to produce the entire work load.

Should a company manufacture or purchase its parts or sub-assemblies?

What is the effect of specification changes?

How often should procurement be reviewed to locate items that can be more profitably manufactured internally?

How does the cost of repairs and maintenance change over the life of equipment?

What will be the scrap or resale value of a particular unit in the future?

How often shoud repair and maintenance costs be reviewed to screen out units that are more expensive to keep than to replace?

Where should warehouses be located? It is posible to determine the best of several possible warehouse or factory outlet locations.

What transportation facilities should be used?

What changes in present distribution facilities should be made in light of future expansion? With a product demand at various locations and a supply of product in several warehouses, it is possible to determine which warehouse should ship how much product to which customer so that the total distribution costs will be a minimum.

What is the most economical blend for oils, petrol, alloy elements, etc.? It is possible to determine either how to blend available ingredients or what ingredients to obtain to meet a minimum cost for a specific end-product demand.

The operations of a company are viewed as a total economic process and emphasis is placed on the co-ordination of information from all parts of the company in order to arrive at policies which will have the best effect on the overall operations, in short, the application of scientific method to problem solving. The scientist in other fields uses a laboratory and working models — the medical scientist has his mouse colony, which is a substitute working model for a human community and for the human system. The aircraft designer has his wind tunnel, the agricultural scientist has his experimental crops, and so on.

What about the scientist in business? Where does he get his laboratory or working model? One can hardly use the business as a whole. A production manager would not be happy to try out numerous production schedules to see which one yielded the best result.

The answer lies in using symbols to represent the variables and constants of the business system or elements in the problem, and expressing the relationship

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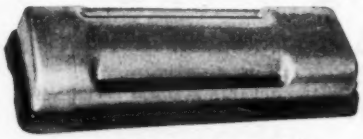

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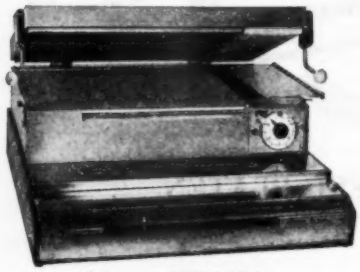

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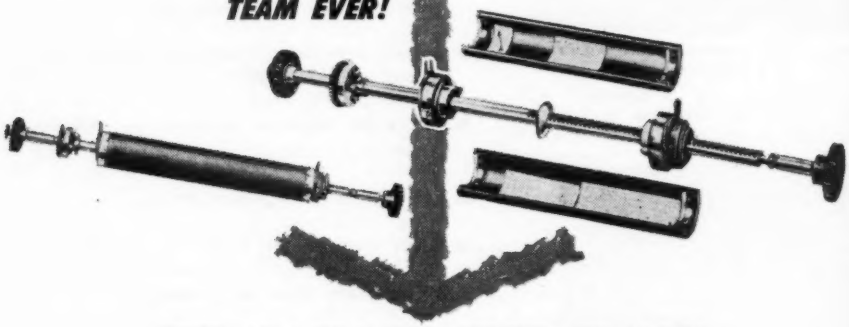

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of one to the other in a mathematical formula. With this formula, we can feed in information representing the likely experience with each of the variables, and can then determine which solution would be most effective. If we can simulate on paper what actually takes place in practice, we can test ideas on such a model, faster, and at less cost, than by attempting experiments on full scale operations. Given the services of a calculator or a computer, the likely results of hundreds or thousands of possible courses of action can be ascertained. Such models are highly important in solving the relatively complex problems of maximising earnings from funds invested in large organisations.

The model is as good as the basic assumptions on which it is made and on the quality and extent of past data available. It frequently occurs that O.R. work is less effective and more time consuming because important information has not been recorded. This is a key area where accounting can make a real contribution to operations research.

Use of a Simple Model

The following model expresses the simplified relationships which are important in determining economic order quantities. By substituting set-up costs for ordering costs, it can be used in some instances for calculation of economic lot sizes.

Where TVC=the total variable costs of procurement and the holding costs of stocks.

S=ordering costs — say £3.

Y=annual usage in units — say 12 units.

I =holding costs — 20%, i.e., it costs £20 to hold £100 worth of stock for one year

C=unit cost — say £10.

Q=the economic order quantity.

Then $TVC = S \times \frac{Y}{Q} + \frac{Q}{2} \times IC$

TVC will be at a minimum when

$$Q = \sqrt{\frac{2\ YS}{IC}}$$

The formula gives the answer 6 units as the optimum order quantity based on the information shown above.

If you are sceptical, it can be checked by straight arithmetic.

Order quantity	12	6	4
Times per year	1	2	3
Order costs	£3	£6	£9
Material cost	120	120	120
Holding costs	12	6	4
TVC	£135	£132	£133

What does one learn when one constructs a model and manipulates it? He might find that, for example, if A happens, then B, C and D would follow automatically because of the fluctuation in A. In other words, B, C and D are closely correlated with A and would therefore be highly predictable in terms of A. The important thing in manipulating the model and considering alternative solutions would be to get reliable information on A. It would not be necessary to know the details of B, C and D. This shows one of the great advantages of the O.R. approach, and that is, simplification and economy of thought. Even this simple model can help us picture the significant factors in O.R. Firstly, we can see that there are variables, for example A, and a constant or constants representing the relationships of A to B, C and D. Secondly, we can differentiate between predictable variables and those which are unpredictable. If A is highly unpredictable, it will require the closest attention. Reducing the number of elements which need to be considered in this way is an important step in making any system understandable. Some information may be significant whilst other details may be insignificant. There is no point in feeding in to a model information that is going to have little influence on the effectiveness of the various courses of action. If one tried to consider all the elements, O.R. would be a most complex means of obtaining a solution, but by using sound judgment it can be reduced to manageable proportions. The end result is that a manager can concentrate on perhaps

half a dozen, a dozen or so important items, rather than on a hundred items of varying significance. This important economy of thought does in fact permit the convenient handling of long and complicated chains of reasoning.

In the long run, it is the overall business system, rather than the specific decision being handled, which is the most important. For example, we may use O.R. techniques to minimise manufacturing costs and consider that, by so doing, we are maximising return from our business, presuming that distribution and sales expense can be considered separately from manufacturing. But I have seen several businesses where an actual increase in manufacturing costs would be justified to realise savings in distribution which would lead to an increase in earnings on funds invested.

The result of an operations research study is a decision making system which specifies optimum operations under a given set of management policies. In addition, the system predicts performance under alternative policies, conditions and strategies. The research provides an insight into the complex relations between operating conditions, business performance and the related decision making processes.

TECHNIQUES EMPLOYED:

The techniques employed are both mathematical and statistical, but we should not let techniques confuse the issue. If we understand the concepts of O.R. and the underlying decision making process, we may not need to adopt complex techiques in many situations. Techniques used include:

1. Linear programming.

This is a method wherein the mathematical relationship between a complicated set of conditions can be set out so that the necessary arithmetical juggling can be carried out to find the best solution. Linear refers to the fact that the rate of change in one item as a function of others can be expressed in terms of a a straight line, e.g., $y=mx+b$. Programming is the setting out of those relationships in terms of a table (matrix) or formula, and finding the best answer. There is always one variable to be minimised or maximised in terms of others. The transportation problem is typical of linear programming applications.

A company has plants in certain parts of the country, which are a known distance from warehouses, for which there is a given demand. Freight rates are known. How can the production of the plants be distributed to each warehouse in accordance with requirements at the lowest possible cost?

To illustrate: We can simplify the problem with a hypothetical example. There are three warehouses, X, Y, and Z which have in stock a total of 270 units of a particular line of merchandise, with 150 at X, 40 at Y and 80 at Z. Demand is as follows:

Customer	Units
A	90
B	70
C	50
D	60
	270

Supply and demand have been equalised to simplify the explanation. If it costs 1/- per visit per mile to transport the product, how much merchandise should be sent to what customers so that total distribution costs will be at a minimum?

The mileages between warehouses and customers are as follows:

To / From	A	B	C	D
X	270	230	310	690
Y	100	450	400	320
Z	300	540	350	570

Since it costs 1/- per unit per mile to distribute the product, the distribution costs per unit would be:

To / From	A	B	C	D
X	£13.5	£11.5	£15.5	£34.5
Y	5.0	22.5	20.0	16.0
Z	15.0	27.0	17.5	28.5

If orders arrived in the sequence, say, C, B, A, D, they would be assigned to meet the lowest cost as follows — the distribution costs per unit are shown at the right side of the column and the quantities assigned to warehouses are shown in bold figures. The unit cost from warehouse X (to customer C) is the lowest cost of the three warehouses. The 70 from B can be supplied most cheaply from X. Customer in A would be supplied 40 units from

warehouse Y, exhausting its supply and 30 units from X. The remaining 20 units required by A will be shipped from Z, and D will receive 60 units from Z.

To / From	A	B	C	D	Supply
X	**30** 13.5	**70** 11.5	**50** 15.5	34.5	150
Y	**40** 5.0	22.5	20.0	16.0	40
Z	**20** 15.0	27.0	17.5	**60** 28.5	80
Demand	90	70	50	60	270

By studying the table, it will be seen that every unit shipped to D from Y rather than Z would realise savings of £12/10/-. For every unit shipped by Y to D, a unit must be shipped from Z to A at an increase in cost of £10, resulting in a net reduction of £2/10/- per unit. As 40 units can be changed in this way, the total reduction in distribution costs would be £100.

Visual inspection can be supplemented by a number of mathematical programming methods. The best solution would be as follows:

To / From	A	B	C	D	Supply
X	**30** 13.5	**70** 11.5	**50** 15.5	34.5	150
Y	5.0	22.5	20.0	**40** 16.0	40
Z	**60** 15.0	27.0	17.5	**20** 28.5	80
Demand	90	70	50	60	270

The cost of the best solution will then be:

30 x £13/10/-	£405
60 x £15	900
70 x £11/10/-	805
50 x £15/10/-	775
40 x £16	640
20 x £28/10/-	570
	£4,095

The cost of the initial solution was:

30 x £13/10/-	£405
40 x £5	200
20 x £15	300
70 x £11/10/-	805
50 x £15/10/-	775
60 x £28/10/-	1,710
	£4,195

A net saving of £100 on the distribution.

The following practical example dealing with the routing of a truck fleet comes from my own firm's experience in the United States.

This work was done for a milk company selling wholesale milk to grocers, chain supermarkets, restaurants and similar customers, but it would equally well apply to many other operations involving regular delivery of standard items to many fixed points in space. The problem as originally stated to us involved the selection of the best type of delivery unit, i.e., 200-case or 350 case trucks and/or 650-case capacity tractor-trailers. It soon became obvious that much more was involved than merely the best size equipment; that is, you couldn't actually determine the best size equipment until you had analysed the alternative ways of routing trucks and serving customers.

There were over 500 customers with varying characteristics; i.e., it was one problem to deliver five cases to a small store, and quite another to deliver 200 cases or their equivalent to a supermarket or large industrial customer. There were several basic types of products — cases of quarts, 20-gal. containers, 40-gal. cans, cases of gallons, half-gallons, and so on. Tuesday and Wednesday demands were quite different from Friday and Saturday peaks, and containers delivered full on Saturday had to be picked up empty on Monday.

The problem really was: What combination of trucks, customers and routes gave the overall minimum total cost with an acceptable risk of not being able to meet fluctuating demands, taking into account all the foregoing.

The first step in the operations research approach to this problem was the determination of costs, by type of truck, by type of location or customer for getting a truck to that customer. This was done by determining average truck velocities for different location classes or zones, and stop densities within these zones, taking into account salaries of drivers, helpers, platform crews and foremen, truck ownership and operating costs, i.e., fixed costs and costs per mile. Then for each customer class the required time of delivery — again fixed per stop and variable per customer — was utilised to determine the cost of actual deliveries on an equivalent case basis for various truck types. Working profit margins from platform to customer, were used to determine those customer classes to whom delivery represented an out-of-pocket loss. This loss was eliminated by the imposition of a delivery charge based upon actual cost. As it turned out, a large number (over 200 stops) yielded such a loss but amounted to only five per cent of the dollar volume and less than that of case volume.

Although intuitively it was first felt that one was losing some possibility of growth

from the standpoint that a loss customer might eventually become profitable. a relatively short historical survey of the data relating to the customer showed that 95 per cent of the loss customers never became profitable. So there was hardly any point in the company's investing its out-of-pocket money on the customer who would never represent a profit. It was necessary, of course, to investigate the effect (since we were working from the delivery platform outward) of possible reduction in plant volume on the marginal cost of producing.

At this point the geographical delivery area was divided into driving time zones, for each of which an equivalent case demand and a time demand in minutes were determined. It was possible to put all of these factors together to determine that combination of trucks which when actually routed stop by stop would:

1. Fill all demands — with a safety margin both in time and cases to allow for fluctuations.
2. Represent the least total cost of: (a) platform operations; (b) drivers and helpers; (c) truck ownership, and (d) truck operating costs.

This was, as is recognised a programming problem. It required for its best solution different routes for the Friday, Saturday, Monday demands than for Tuesday, Wednesday and Thursday. This was something new, incidentally, in the milk business, because prior to this, as far as we know in such companies, drivers served the same route on Saturday and also on Tuesday, even though the demand might be half on Tuesday what it was on Saturday.

These routes turned out to be substantially different from the ones in previous use, which, incidentally, is another feature often found in operations research solutions. Once we had a system, we could run out many alternative solutions. The optimum solution called for two 650-case tractor trailers, but we did not recommend their purchase since the difference in cost for the next best solution was only a few thousand dollars per year. In summary, there was a significant reduction in trucks required, an out-of-pocket saving amounting to about 20 per cent of the delivery costs, which was the equivalent of 20 per cent of the firm's gross profits — and a system for continuing use which would assure efficient routing and selection of equipment, all with adequate safety margins.

2. Queueing Theory.

This technique can be applied to certain types of problems where there is a high degree of uncertainty. If a manager does not know what is going to happen in a particular aspect of operations, he normally provides a safety margin for uncertainty. However, safety margins cost money — inventory, extra facilities and standby labour — and a technique is needed which will help achieve an optimum balance between risk and safety margin. Queueing theory is an exercise in probability, developed initially for telephone exchanges, to enable an optimum balance to be struck between costly installations and customer service. It is to relevant conditions where people or items arrive for a service or join a queue, such as for check-out counters at a super-market, vehicles requiring service, outpatients at a hospital, timing of traffic lights, and cafeteria service.

A typical problem is found in materials handling where we may need to know, for example, how much truck dock space to provide in a warehouse in the face of uncertain demand. How do we balance the cost of trucks waiting in line to load or unload in terms of lost sales, customer goodwill, etc., against the cost of warehouse facilities. A rule-of-thumb decision not backed by quantitative information may result in inadequate facilities being supplied for transport operations or, alternatively, an unnecessarily costly warehouse installation.

If queueing theory is applied to this problem the following kinds of statistical information must be obtained: 1. Number, arrival and departure times, and size of trucks; 2. Loading and unloading times of various sizes and types of trucks; 3. The proportion of in-bound and out-bound trucks, if they require different servicing time.

If queueing theory is to be used, a series of mathematical equations will be formulated to provide answers to the waiting time which will be involved if varying numbers of docks are built.

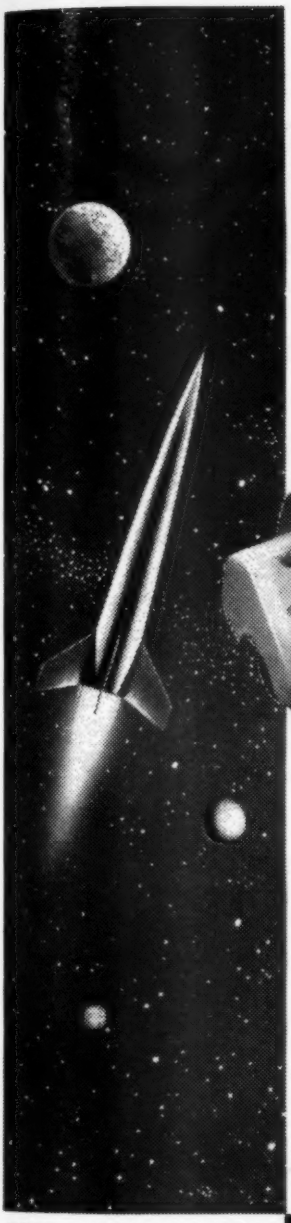
3. Monte Carlo Technique.

On the other hand the problem can be solved by Monte Carlo methods which amount to scientific trial and error. The Monte Carlo technique is a way of simulating a situation in mathematical terms and playing through a large number of random possibilities which involve probability theory with sampling to produce real life patterns.

Now, with the problem of finding the most economical number of warehouse docks to construct, we can use the statistics already collected to conduct a series of random tests as to what might happen in practice if typical activities occur. On a computer, thousands of possibilities can be tested.

Analysis of this information may show that there are peak months, days and hours. If the maximum and minimum number of trucks which it can be expected will arrive or depart at specific busy times can be graphed, we can greatly simplify the problem of what will happen in practice.

A typical day of truck arrivals can be recreated on the basis of statistical probability



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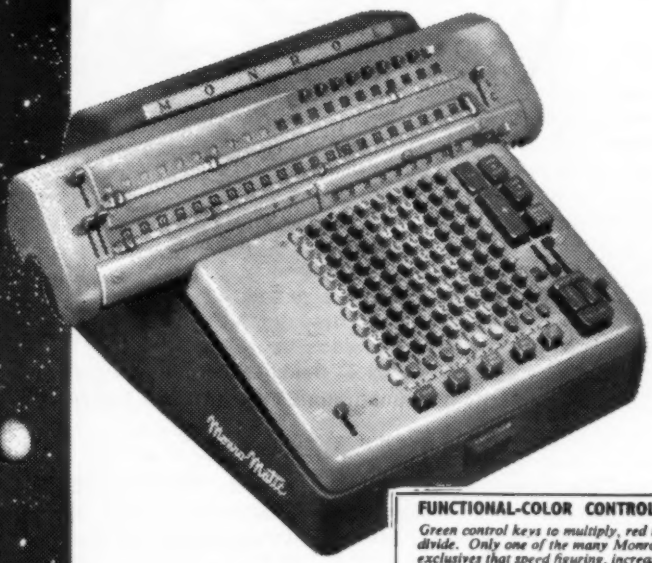

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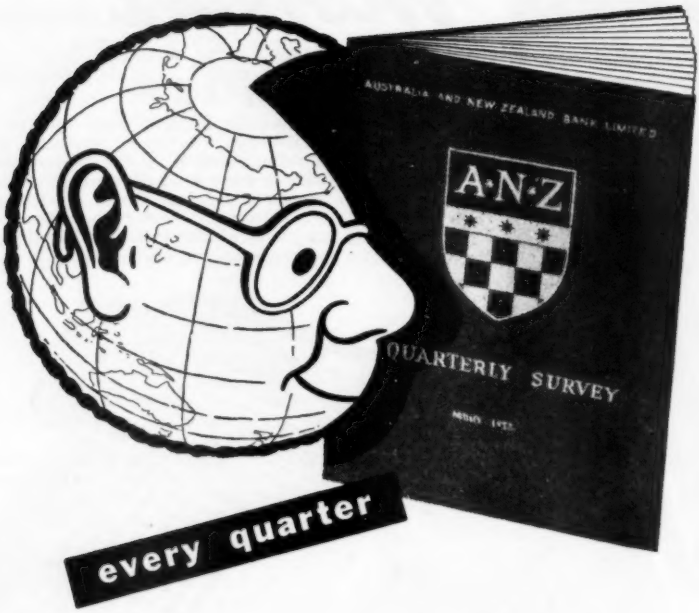

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to assess the number of trucks which will be waiting in line if we have one dock, two docks, three docks, four docks and so on. For example, it may be found that if five docks are constructed, 50% of the trucks at peak periods will wait at least 25 minutes. If there are three docks, 50% of the trucks might wait more than 100 minutes. The cost of the installation can then be compared with the waiting time saved and the most economical level of facilities can be determined. Management can then weigh these figures against other intangible factors, such as growth potential, availability of capital, and so on, and make a final decision on the number of docks to be constructed.

4. Theory of games.

This was developed from a study of simple two-man games (e.g., coin-spinning) with the particular characteristic that one man gains what the other loses. From this has been developed a theory which can provide a strategy for a company in an uncertain competitive situation.

ACCOUNTING AND OPERATIONS RESEARCH:

How does the development of operations research affect accounting?

It gives accounting the oportunity to contribute to the decision making process of business by which profits are made and lost, rather than to act merely as scorekeeper. To do this effectively, information collected from original sources should be capable of further analysis — sales into products, outlets, geographical regions, size ranges, etc. costs into specific functional classifications; purchasing records should show important matters such as the lead time required on various items of stock, the range of monthly usage throughout the year, etc.; standards should be available for budgeting; direct costs separated from period costs; contributions made by individual products to profit and fixed costs should be known. As soon as we extend our thinking to the information which management should have for decision making, we will come to regard our present information systems as totally inadequate.

Accounting techniques must be widened to include the application of statistical methods in such areas as budgeting, sales forecasting, work sampling, and so on.

In budgeting such as to assess the relationship between sales or production volumes and individual expenses. We should know what is the major factor or factors which cause a particular cost to vary, if budgeting is to be a useful tool for planning and control.

For example, every expense item will be found to involve a constant cost which is influenced very little by changes in activity levels, and a fluctuating cost which is directly related to changes in activity levels and conditions. In addition, there is likely to be a random element of an unpredictable nature which is often small in magnitude, which, in the interests of simplification, can be ignored. These elements can be estimated by a statistical technique called regression analysis which can help us isolate the relationship between two or more variables — e.g., hours worked and wages, units produced and total cost, rainfall and yield per acre. There can be a dozen variables affecting the particular variable, such as total cost, which we want to find. We might come up with a highly simplified equation for a particular item of expense as follows:

For example, in assessing labor costs for an operation, it will be found that rates of pay vary for workers in the same operation and average rates of production vary within the group of similar workers. Production rates vary from hour to hour and day to day, set-up costs vary from different products, different lengths of run, different sequence in which the jobs are run.

In these circumstances, it is possible to analyse actual costs statistically in order to predict future cost patterns and to construct control information for given processes or products. If we collect information on, say, weekly payroll for an operation, as compared with the standard hours per week, we can fit through the various points a statistical trend line which can be used for predictive purposes.

This line could be expressed as an equation. (The figures are taken from a practical case).

e.g., $y=3.185x+1120$

Standard labour cost for a particular number of standard labour hours would be equal to

$$\frac{y}{x} = 3.185 + \frac{1120}{x}$$

From this equation we can construct tables whereby the weekly payroll can be predicted from the standard labour hours concerned.

TABLE HEADINGS

x=hours per week	y=weekly payroll	$\frac{y}{x}$ = standard labour hour cost

Regression analysis is very valuable in helping with the prediction of expense patterns where there are extra shifts and variations in work loads which result in a different number of work days, in turn affecting the eventual cost pattern which will be incurred.

In the use of probability theory, this plays a large part in most O.R. techniques. It is the ability to make a quantitative estimate of the best outcome and to balance scientifically one probability against another that makes operational research such a valuable tool and which would render accounting a far more dynamic technique. Probability theory does not purport to predict future occurrences. It does make the best estimate possible, using all the available information, of the probability of future occurrences. It can do this in a consistent and more satisfactory manner than intuition, and can express the relationship quantitatively, thereby permitting subsequent analysis and adoption in a control system.

In sales forecasting. If sales forecasts are to be reliable, past results must be analysed statistically and projected into the future.

Data processing must be more timely and informative. Quicker and better methods are needed if we are going to make progress towards sounder business decisions. This applies not only to fact-finding and evaluation, but also to the feed-back of information in a continuing control system. Operations research and accounting are not concerned with one time problem solving, but with a continuing information system for decision making and control.

Accountants must obtain a wider understanding of business problems. There has been too much concentration on the techniques of bookkeeping — watching the pennies while the pounds slip away. There is grave danger that, when management gets round to considering operations research, the team will comprise engineering, statistical, scientific and mathematical abilities, but not accounting.

An analysis of operations research in American business made by the American Management Association showed that only 4.7% of the people engaged in O.R. work had an accounting and business background. The figures are as follows:

Engineering	42.3%
Science	18.4%
Mathematics	15.6%
Statistics	11.4%
Miscellaneous	4.8%
Accounting and business	4.7%
Economics	2.4%

This is not an encouraging state of affairs. It suggests that accountants of the future need to be better trained in mathematics and statistics. I have seen already sufficient of the possibilities to make me certain that the next generation of accountants will need to be capable of participating in solving the kind of problems discussed here, in understanding the basic techniques used, and in advising top management when and where they should be applied.

I think we need to get out of the ostrich act fairly soon. The tremendously powerful techniques described in this paper in the hands of someone who has judgment and understanding of the business process, will turn accounting into a dynamic management tool, rather than a mere historical summary of what has happened. If this is not done, then accounting will go the same way as blacksmithing.

As accountants, we should not lose ourselves in the mysteries of O.R. techniques. We must take the concepts of O.R. and apply them to our profession. We must be capable of analysing business problems by scientific methods, so that we can provide management with a better appreciation of what the alternatives are for action and which course offers the best prospects. Let us use whatever practical techniques are the most appropriate, short of complex mathematics. If we are facing a complex problem, we should know what the more advanced O.R. techniques can accomplish, and hire people to undertake the work, as we would hire a methods engineer if we want some work study done. In this way, we can be masters of our discipline and not slaves to the trappings.

NEW BOOKS

Recent additions to the Society's Central Library, Melbourne. Requests for books should be made through Divisional libraries.

The accountant as adviser and co-ordinator in electronic data processing. Report of Proceedings at the Week-end School at Queen's College, Oxford, April 10-12, 1959. London, Association of Certified and Corporate Accountants. 134 pp.

Accounting: administrative and financial. G. Husband. Philadelphia, Chilton Co., 1960. 499 pp.

Accounting for greater profits. American Institute of Certified Public Accountants. New York, 1960. 80 pp.

Accounting systems of smaller authorities: a research study. Institute of Municipal Treasurers and Accountants. London, 1960. 111 pp.

Accounting theory and practice: intermediate. R. R. Milroy and R. E. Waldon. Boston, Houghton Mifflin Co., 1960. 681 pp.

Accounting theory and practice: introductory. R. R. Milroy and R. E. Waldon. Boston, Houghton Mifflin Co., 1960. 877 pp.

Balance sheet for take-overs. A. Vice. London, Barrie and Rockliff, 1960. 36 pp.

Budgetary control, standard costing and factory administration, 2nd ed. S. R. Cave. London, Gee and Co., 1960. 211 pp.

Budgeting for profit in small business. American Institute of Certified Public Accountants, New York, 1959. 64 pp.

The capital budgeting decision. H. Bierman and S. Smidt. New York, Macmillan Co., 1960. 246 pp.

Communications in modern business. A. Donnelly. Sydney, Butterworth, 1960, 280 pp.

Concept of management services by CPA's. J. L. Carey. New York, American Institute of Certified Public Accountants, 1959, 19 pp.

Cost accounting and costing methods, 10th ed. H. J. Wheldon. London, McDonald and Evans, 1960. 546 pp.

Cost reduction and cost control in the small business. American Institute of Certified Public Accountants, New York, 1960. 71 pp.

Credit and collection principles and practice, 7th ed. A. F. Chapin and G. E. Hassett. New York, McGraw-Hill, 1960, 589 pp.

Departmental merchandising results in small department stores, 1956-58. E. H. Gault. Ann Arbor, Univ. of Michigan, 1959. 104 pp.

Economics: a general introduction, 6th ed. F. Benham. London, Pitman, 1960. 575 pp.

Economics of underdeveloped countries. P. T. Bauer and B. S. Yamey. Herts., James Nisbet, 1957. 271 pp.

Electronic business machines. J. H. Leveson *ed.* London, Heywood, 1959. 272 pp.

Exploration in management. W. Brown. London, Heinemann, 1960. 326 pp.

Financing the small business. American Institute of Certified Public Accountants, New York, 1959. 86 pp.

The function of management. Canadian Institute of Chartered Accountants. Toronto, 1959. 69 pp.

Guide to management accounting, 2nd ed. H. W. Broad and K. S. Carmichael. London, H.F.L., 1960. 173 pp.

Guides for business analysis and profit evaluation. U.S. Department of Commerce. Washington, Government Printing Office, 1959. 76 pp.

Practical Techniques for Calculating Return on Investment

By KEITH R. HEAD, A.A.S.A., A.C.A.A.

JUDGING by the flush of articles appearing in accounting journals dealing with the topic "Return on Investment" and the highly favoured "Discounted-Cash-Flow" method for the assessment of returns, it would appear that accountants are now becoming more familiar with certain types of actuarial calculations and in particular with the effect of compound interest on growth of funds, or, stated from a reciprocal viewpoint, the assessment of the present worth of future funds.

As the calculations involved in the application of the discounted-cash-flow method can become rather onerous where the problem is of any magnitude, the following observations are offered for the assistance of anyone interested in easing the work involved in the practical side of the subject or, alternatively, in attainment of greater accuracy.

(1) Use of Electronic Computor

Where a problem involves choosing between a number of alternatives and for each one it is desired to know the effective return on investment, the use of an electronic computer is an ideal and surprisingly practical help in arriving at a solution.

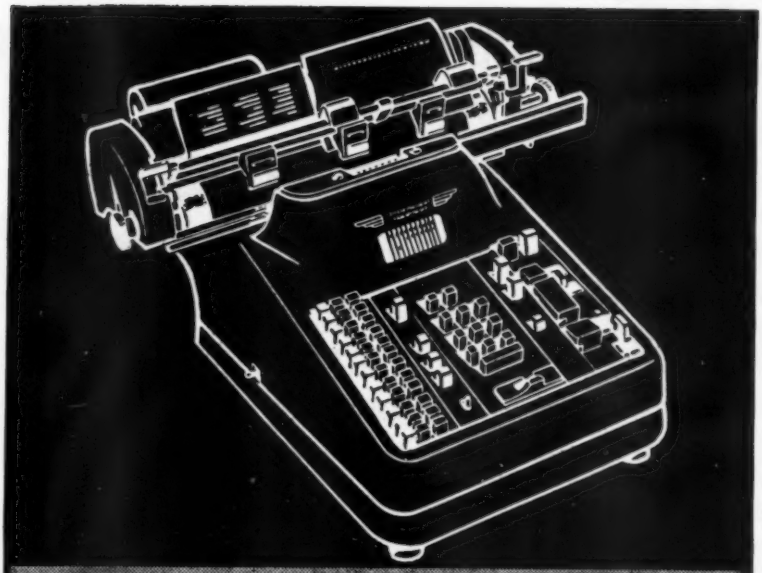
A computer such as the CSIRAC at Melbourne University (which is not a modern machine) can produce an answer to a list of cash flows in a matter of minutes, compared with the hours of manual calculation which would otherwise be required. All that need be fed into the machine once it is programmed is the amount of each cash flow out of or into the venture identified by the date at which such flow occurs, the date being expressed as so many years (or periods) after starting point. If any flow in or out takes place at other than annual (or periodic) frequencies it need only be stated as a decimal fraction of a year (or period) for the machine to correctly allow for it. It is thus possible for the computer to take cognizance of as small periods of time between cash flows as the accountant can be bothered allowing for in his budget.

For example, the following cash budget was drawn up for a land development venture.

Half year:—	
Jan. to June, 1960	Invest £7,500
July to Dec.	Invest 49,750
Jan. to June, 1961	Recoup 8,820
July to Dec.	Recoup 1,590
Jan. to June, 1962	Recoup 6,700
July to Dec.	Recoup 3,878
Jan. to June, 1963	Invest 14,304
July to Dec.	Recoup 24,250
Jan. to June, 1964	Recoup 96,812
July to Dec.	Recoup 4,094
Jan. to June, 1965	Recoup 13,045
Net profit over 5½ years	£87,634

It was assumed for simplicity that each half-year's flow took place at a point midway between start and end of the period, except for the first investment of £7,500 which was known to be required in January, 1960. The above figures were therefore fed into the computer (the programme tape for this type of calculation having already been selected) via a paper tape as follows:—

Figure representing date of each transaction expressed as years after starting point.	Amount of each transaction (negative for paid in, positive for cash surpluses)
0	-7500
.75	-49750
1.25	8820
1.75	1590
2.25	6700
etc., etc.	



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The CSIRAC is by no means the most modern type of computor and its hire rate is correspondingly lower than the more speedy commercial types currently available. The charge for machine time taken for the above calculation would be about six or seven shillings, which is obviously a great economy over the labour involved in the comparable manual method which in most cases would provide an answer subject to approximations caused by the necessity to interpolate.

The ease of such a method is particularly useful when it is desired to know the effect of small changes in cash flows brought about by minor alternatives. Obviously, no one is going to be bothered assessing these if it involves laborious calculations, but with access to a computer it is a simple matter to obtain rates of return on any number of variations to the main cash flow budget. Some examples of such minor alternatives which could well apply to the above land development venture would be the following:—

The difference between charging £100 or £200 deposit on each lot.

The difference between setting repayment instalments at rates inclusive or exclusive of interest.

The difference between three-year or four-year terms.

The effect of £50 differences in lot selling prices.

(2) Use of Slide Rule

It has been stated that there is a lack of suitable interest tables for use in calculations such as are involved in the D.C.F. method, but this handicap largely disappears if use is made of a slide rule containing exponential scales. Some commercial type slide rules incorporate these described as "compound interest" scales, and these are useful, but better than these are certain rules designed more for mathematical use because that type contains scales with a longer range and they cater for both positive and negative exponents.

The standard codes for these scales are LL0, LL1, LL2 and LL3 for the positive scales (equivalent to compound interest) and LL/0, LL/1, LL/2 and LL/3 for the negative scales (equivalent to compound discount, alias "present value of future £1" or, in other words, the reciprocal of the compound interest scale.)

Such slide rules have the following advantages over presently available tables:

(a) They offer an infinite selection of interest rates

Whereas printed tables are by their nature restricted to a pre-selected sequence of rates and require interpolation for estimates of factors applicable to rates not set out, the slide rule will give a direct reading for any rate required. In spite of their popular reputation, slide rules have a surprising accuracy in this particular scale and will make much finer distinctions than are likely to be needed in practice. For example, a ten-inch rule will distinguish between 4.00 per cent and 4.01 per cent, or between 25.0 per cent and 25.1 per cent.

(b) They offer an infinite selection of period lengths

This attribute is similar to the previous point and likewise arises from the different nature of the slide rule as compared with printed tables. Most printed tables restrict their chosen periods to whole years for, say, the first twenty years and then jump five years at a time. This is a real weakness if ventures are being considered which involve both high rates of return and cash flows which fluctuate within each of the first few years.

In these circumstances it is well worthwhile being able to distinguish between the compound interest factor for, say,

one year and four months at forty per cent compounded annually as against one year and one month at the same rate. The factors in this case are 1.566 and 1.44 respectively. Conversely the comparatively large differences in factors in these circumstances show how important it is that the relevant cash flow budget, on which the calculations are to be based, be prepared with the greatest possible accuracy and with the early stages broken down into short periods. For important ventures it is entirely reasonable to break the first year into months and the next few years into quarters. (It is with this style of breakdown that the computer really proves its worth!)

A related point which may be mentioned under this heading is the selection of tables of factors based on cash flows assumed to occur at the start of each period, as against the mid-point of each period and as against the end of each period. Each printed table of factors is true for only one of these or the other assumptions on which it is based. The slide rule, however, has the advantage of being unrestricted in this regard because of the infinite selection of periods which it offers. In fact, the necessity to compromise and make such an overall assumption disappears and the cash flow for each budget period can be examined in its own right and an assessment made of the effective date of the flow for that particular period within the whole venture.

For example, if, in a venture broken down into yearly periods, it is known that during the first year the main transaction occurs at the mid-point of the period whereas during the second year it is expected to occur at the start of the period, then these circumstances can be allowed for by using the factor applicable to 0.5 periods for the first year and 1.0 periods for the second year. The slide rule will give the factors for such irregularly timed flows just as easily as it or tables will give the factors for regularly spaced items.

(c) *They provide a ready means for the conversion of compound interest (or discount) rates from one compounding frequency to another.*

Any printed table of factors is true for only the compounding frequency on which it is based. That is to say that if, for example, it is based on the assumption that interest is to be compounded at annual rests, then it will not be true for situations involving interest at quarterly or monthly rests. For example, 36 per cent per annum compounded annually will result in a growth factor of 1.36 at the end of the first year, whereas if compounded monthly it will grow to 1.426. (The latter figure is obtained by setting the scales for a growth of 3 per cent per period and reading off the factor for the end of twelve periods).

From the above example it will be seen that quite large differences can result if care is not taken to ensure that comparative rates of return for alternative uses of funds are all quoted as for the same compounding frequency.

The advantage of a compound interest slide rule lies in the fact that it can quickly convert the expression of interest from one basis to any other basis. A circumstance in which the need for this type of conversion would arise could be, for example, the borrowing of funds from the public with interest payable half-yearly at 8 per cent p.a. combined with the receipt of interest from borrowers at 12 per cent p.a. together with a company policy to express rates-of-return on the basis of annual compounding because the company pays dividends to its shareholders yearly. In such circumstances it is handy to know that the profit margin on money borrowed and re-lent is not the simple difference of 4 per cent p.a. but is 4.54 per cent because the 8 per cent p.a. compounded half-yearly equals 8.16 per cent p.a. and the 12 per cent p.a. compounded monthly equals 12.7 per cent p.a. These conversions are a matter of a few moments' work on the slide rule.

(3) Use of Hypothetical Current Account

Amidst the interesting complications associated with the discounted-cash-flow method and its use of compound discount factors, it is easy to overlook a simple method of determining the true rate of return. This method can be applied to a large proportion of cash flow problems with accuracy equal to the use of discount tables, and with greater convenience than either tables or slide rule. For want of a better name this may be called the Hypothetical-Current-Account method.

Basically it consists of compiling an hypothetical interest bearing current account into which the net cash investment or cash recoupment for each period of the budgeted venture is debited or credited respectively. At the end of each period interest is calculated on the balance in the account and debited. When an interest rate is chosen which results in a nil balance on the account at the end of the venture then such interest rate represents the true rate per cent per period which has been earned by the funds invested; the fact that a nil balance results meaning, of course, that the debits for interest equal the surplus of credits in the account (the surplus representing the net profit or cash surplus on the venture). To arrive at the rate which produces a nil balance it is necessary to do two or more test calculations and then interpolate in the same manner as for the discounted-cash-flow method.

The use of this method is illustrated by the following example. To facilitate comparison of methods, the basic data chosen are the same as that for an illustrative calculation of the D.C.F. method set out on page 19 of "The Economics of Capital Expenditure" by K. A. Middleton (issued as a supplement to *The Australian Accountant*, September, 1960.

Investment outlay at start	£6,000
Cash earnings — 1st year	4,000
— 2nd year	3,000
— 3rd year	2,000
— 4th year	1,000
Residual value	nil
Net earnings	£4,000

Calculation of Return on Investment:—

Time	Item	Trial at 30%	at 35%
0 year —	Invest	£6,000	£6,000
1 year —	Add interest	1,800	2,100
		7,800	8,100
	Deduct earnings	4,000	4,000
		3,800	4,100
2 year —	Add interest	1,140	1,435
		4,940	5,535
	Deduct earnings	3,000	3,000
		1,940	2,535
3 year —	Add interest	582	887
		2,522	3,422
	Deduct earnings	2,000	2,000
		522	1,422
4 year —	Add interest	157	498
		679	1,920
	Deduct earnings	1,000	1,000
Final balance		short £321	over £920

As the sought interest rate is that which would result in a **NIL** final balance it may be approximately found from the above two trials by interpolation as follows:—

If 30% trial gives interest earnings of 4,000-321, i.e., £3,679

and 35% trial gives interest earnings of 4000 + 920, i.e., £4,920

then 5% change in rate has resulted in an interest change of £1,241

therefore 1.3% change in rate would result in required increase of £321.

i.e. 31.3% would give required interest earnings of £4,000.

That this method will give the same result as the D.C.F. method is apparent when one looks at the following definition published in the N.A.A. Research Report, No. 35, "Return on Capital as a Guide to Managerial Decisions" where the rate of return determined by the D.C.F. method is stated to be "the maximum rate of interest that could be paid for the capital employed over the life of an investment without loss on the project."

The circumstances in which this Hypothetical-Current-Account method will give the desired result with some advantage in ease of working over the normal D.C.F. method and with no sacrifice of accuracy are as follows:—

(a) Where it is required to find the rate of return for a given cash flow, but not where the desired rate of return is given and it is required to evaluate therefrom two or more alternative cash flows in terms of comparable present values.

(b) Where the cash flow may be assumed to occur at the same relative time in each period; that is, always at the start, always at the end, or always at the mid-point or other fixed points within the period.

(c) Where there is a cash flow during all or the great majority of periods within the venture, but not if the venture contains a sequence of periods where no cash flow takes place, because with this method a calculation of interest and new balance must be made for each period, whereas with the D.C.F. method only those periods which have a cash flow are the subject of calculation.

(d) Where the successive items in the cash flow are for fluctuating amounts, but not where an annuity type sequence occurs.

It should be noted that requirements (c) and (d) do not necessarily exclude the use of the Hypothetical-Current-Account method in the unfavourable circumstances stated. In fact, if no discount tables are available then this method will still give the correct result but at the cost of a greater number of calculations than if tables were to be used.

Discounted Cash Flow

RATE OF RETURN CAN BE DECEPTIVE

By F. K. WRIGHT, A.A.S.A., F.C.A.A.,
Consultant, W. D. Scott & Co. Pty. Ltd.

IT will be shown in this article that the rate of return is not a reliable guide to the relative profitability of alternative projects.

The words "rate of return" refer to the concept popularised by Joel Dean in conjunction with the discounted cash flow method. In mathematical language, the rate of return of a project is defined as that rate of discount which reduces to zero the present value of the net cash flows associated with the project. In simpler language, rate of return may be thought of as that rate of interest which a savings bank would have to pay in order to match the returns from the project.

The method of calculating rate of return need not be demonstrated here, since two worked examples were given in the booklet, *The Economics of Capital Expenditure*, by K. A. Middleton, which appeared as a supplement to *The Australian Accountant*, September, 1960. (These examples will be found on pages 19 to 23 of the booklet.)

In this article, we are concerned not with the method of calculating rates of return, but with the interpretation which should be placed upon them.

It is commonly believed that rates of return, calculated by the discounted cash flow method as demonstrated in the

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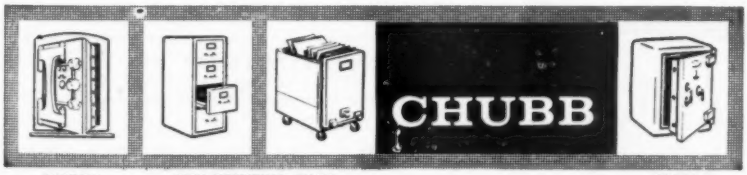

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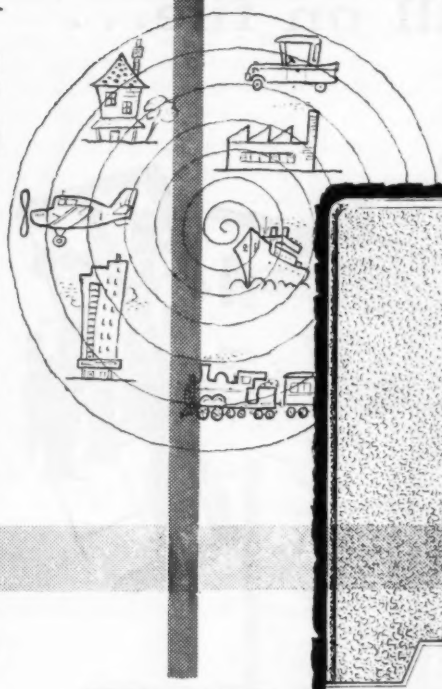

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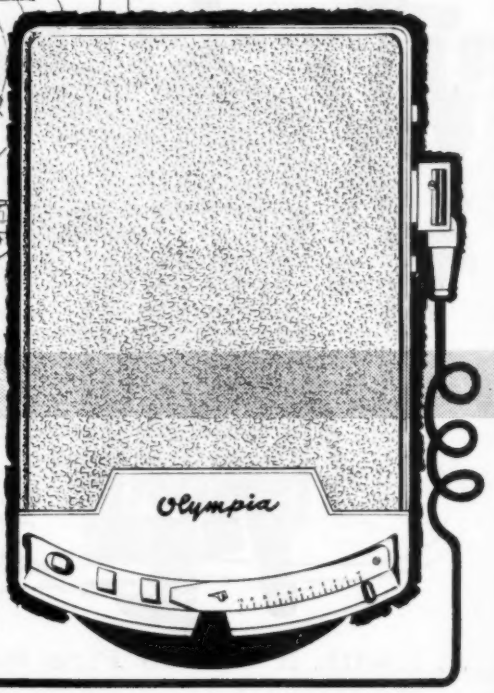

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booklet, do indicate the relative profitability of alternative projects. Other things being equal, it is said, the project with the higher rate of return should always be undertaken in preference to the project with the lower rate of return. Unfortunately, it isn't as simple as all that.

It would be truer to say that rates of return indicate the relative *urgency* of different projects. Thus, if all of several projects are to be undertaken sooner or later, but limited capital prevents them from being undertaken all at once, then the project with the highest rate of return should be started first, followed by the others in the order of their rates of return. Used in this way, the rate of return criterion will not mislead.

However, if it is a question of choosing between two alternative projects, only one of which can be undertaken, the rate of return is a most unreliable guide. It will often be the case that the project with the lower rate of return is the more profitable one to undertake.

To illustrate this point, consider the following example:

A company is considering the mechanisation of materials handling in its warehouse. Project A consists of a conveyor which would cost £4,000 to instal, and would save £850 a year. It would have no salvage value at the end of eight years when the lease on the warehouse expires.

Project B is a fork truck costing £3,200, which would have a disposal value of £1,000 at the end of four years, or £200 at the end of eight years. Net operating savings from the fork truck (after maintenance but before depreciation) are £1,000 in the first year, declining by £100 a year to £300 in the eighth year.

Depreciation is allowable at the rate of 12½% p.a. on the cost of the conveyor, and at 15% p.a. on the cost of the fork truck. Taxation takes 8/- in the £ of net profit. The company is paying 6½% on overdraft (the interest being tax-deductible) and earns 15% before tax on its working capital.

Should either of the two projects be undertaken, and if so, which?

Project B has at least two variants, which need to be evaluated separately. We will call "B1" the proposal to retain the original fork truck for the eight remaining years of the warehouse lease, and "B2" the proposal to trade in the original fork truck at the end of four years, for a new truck at a similar price.

The first step in comparing the projects is to convert each to a series of net after-tax cash flows, using the method illustrated in Problem No. 2 of Mr. Middleton's booklet (p. 15). This gives the following results:

Year	Project A		Project B1		Project B2	
	Outflow	Inflow	Outflow	Inflow	Outflow	Inflow
0	4000		3200		3200	
1		850		1000		1000
2		710		692		692
3		710		632		632
4		710		572	1628	
5		710		512		1024
6		710		452		692
7		710		392		632
8		710		468		1572
9	140		200			24

If we now calculate rates of return, by the method illustrated on pp. 22-23 of the booklet, we get the following results:

Project A	9% p.a. after tax
Project B1	10½% p.a. after tax
Project B2	8% p.a. after tax

Normally, it would be inferred that Project B, the fork truck, is to be preferred, and that the truck should be retained for the full eight years.

But it can easily be shown that in certain circumstances Project A is the more profitable. For instance, if the project is to be financed by a bank overdraft at 6½%, and the savings from the project used to pay off the overdraft, then Project A shows a better profit than Project B. If, on the other hand, the savings from the project are available for use as working capital earning 15% p.a. before tax, then Project B shows the greater profit.

The conclusion must be that rates of return should not be used to decide between projects which are alternative to one another.

Instead, the discounted cash flow method should be used to determine the present value of each project, using as the rate of discount *the rate which the funds progressively returned from the project would earn.* Thus, if the funds returned from the project would go into working capital earning 15% before tax, the rate of discount used to evaluate the projects should be 9% p.a. (allowing for income tax at 8/- in the pound).

If the funds returned from the project would save overdraft interest at the rate of 6½% p.a., the rate of discount used should be 4% p.a. (again allowing for income tax at 8/- in the pound).

These calculations give the following results:

After-tax earning rate of funds	Present value of Project A	Project B1	Project B2
4% p.a.	+ 817	+ 630	+ 607
9% p.a.	— 6	+ 151	— 142

This comparison places the projects in their correct order of merit under each set of circumstances.

The general relationship between the three projects at various interest rates is graphically illustrated in Fig. 1. From this, it can be seen that the order of merit of the three projects up to 3% p.a. is: A, B2, B1. From 4% p.a. to 7% p.a.. the order is: A, B1, B2. It is only for interest rates in excess of 7% p.a. that the three projects assume the order indicated by the rate of return: B1, A, B2.

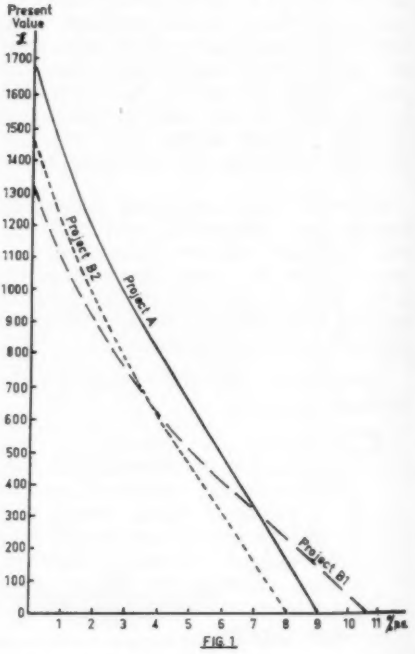


FIG 1

Out of all this a simple rule emerges:

Use rate of return to decide the order of priority among projects all of which it has been decided to undertake. But when deciding whether to undertake one project rather than another, the present-value method should be used.

Recording for Standard Costs

By G. N. BOWLES, B.EC., A.A.S.A., F.C.A.A.,
Lecturer in Accounting, The University of New South Wales

MANY of the condensed texts on cost accounting do not show clearly the different methods of recording when a standard cost accounting system is used Illustrative examples are often shown in varying ways without explanation as to the particular method used. Those writers who do show the various methods do not explain the conditions under which one method would be used as opposed to another.

Once standards have been set, the accounting work involves (a) recording standard cost of operations completed in the period, and (b) determining and analysing variances between actual and standard cost of operations completed in the period.

In general, the methods used may be summarised as basically two:—

Method 1: Charge work in process with *acual* costs incurred and credit at *standard* for finished work.

Method 2: Charge work in process at *standard* and credit at *standard for* finished goods.

Now consider some varying circumstances in which these alternative methods would be applied —

METHOD 1

(a) where entries are made during the period but total output is unknown until the end of the period (i.e. only after the determination of work in process). Standard allowances and variance analysis, therefore, can be made only at the end of the period. All entries must therefore be at actual. This situation would apply to many process cost industries.

(b) although information relating to standards could be obtained it is considered that such information would not be of additional benefit *during* the period and the cost of obtaining such information outweighs its value.

METHOD 2:

When a predetermined output is in course of production and standards can be calculated from original media, (invoices, bills of material, time cards, etc.) progressively. Entries can then be made during the period (at the standard rates) to the variance and work in process accounts simultaneously.

If the accouting system is such that the ledger is entered only at the end of the period — the detailed information being kept in summary form — then there is no problem. Either method may be used.

The treatment in Method 1, as regards material and labour, is modified in that "actual" becames "actual at standard price," when price variances are segregated (a) at point of receipt of materials and (b) at time of payment for labour.

For example take the following examination question as set by The Australasian Institute of Cost Accountants:

Record in ledger accounts under the standard cost plan the following information:—

	£
Material purchased —	
Actual cost	1612
Standard cost	1584
Material issued —	
Actual quantity at standard cost	936
Standard quantity at standard cost	982

Labour

Actual cost	864
Actual time at standard rate	842
Standard time at standard rate	817

Expense

Actual cost	748
Budgeted expense	650
Absorbed expense	672

Assume also:—

1. Transfer to finished goods £2,000.

2. Material price variance diverted at time of purchase (This is suggested by question as actual quantity issued at actual price is not given).

METHOD **1**

MATERIAL

Purchases (actual)	1612	Price variance	28
		Issues (actual at standard)	936
		Balance	648
	1612		1612

LABOUR

Wages (actual)	864	W.I.P. (actual)	864

MANUFACTURING EXPENSE

Exs. (actual)	748	W.I.P. (actual)	748

WORK IN PROCESS

Material (act. at std.)	936	Finished goods (standard)	2000
Labor (actual	864	Labour efficiency variance	25
Expense (act.)	748	Labour price variance	22
Material quantity variance	46	Expense budget variance	98
Expense absorption variance	22	Balance in process	471
	2616		2616

METHOD 2

MATERIAL

Purchases (actual)	1612	Price variance	28
Quantity variance	46	Issues (standard)	982
		Balance	648
	1658		1658

LABOUR

Wages (actual)	864	Price variance	22
		W.I.P. (standard)	817
		Quantity variance	25
	864		864

NOTE

(1) Finished goods and variance accounts are not shown.

(2) Insufficient information is available to show separately idle capacity and efficiency variances.

MANUFACTURING EXPENSE

Expenses (actual)	748	W.I.P. (absorbed at standard)	672
Absorption variance	22	Budget variance	98
	770		770

WORK IN PROCESS

Material (stan.)	982	Finished goods	2000
Labour (stan.)	817	Balance in process	471
Expense (stan.)	672		
	2471		2471

The above example treats the entries for material, labour and expense consistently under each method.

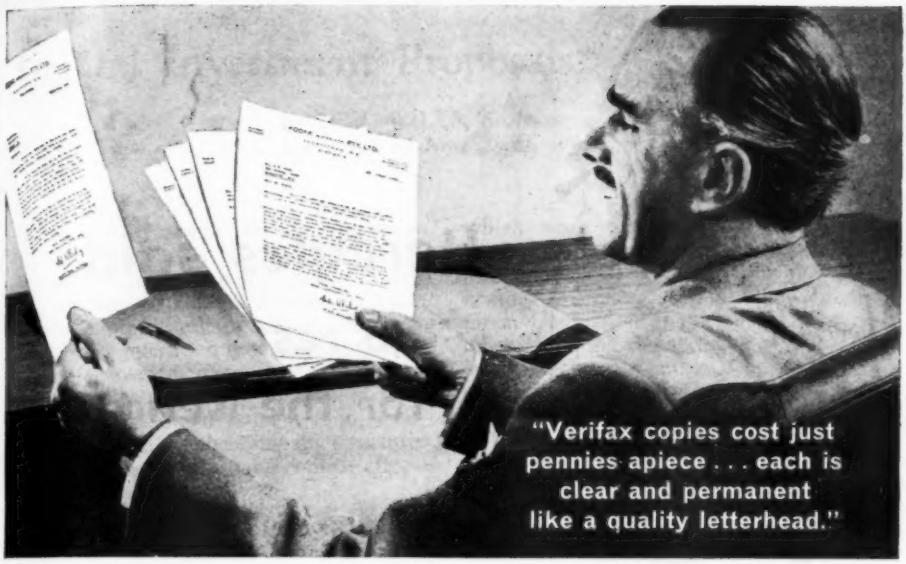
This does *not* mean that the two methods are completely exclusive — any combination of them may be adopted. Influencing factors could be for example, (a) the cost of obtaining detailed information, and (b) the need for control in one section (e.g. labour) as opposed to another.

In examination questions either method or a combination of them may be used — subject to specific instructions in regard to treatment of material price variances.

Method 1 is fundamentally the simplest one to design and instal. Method 2, however, requires more basic planning (e.g. recording from time cards, bills of material, etc.), depending on the degree of detail required. From the production control viewpoint, it has the advantage of more immediate control. It indicates to those concerned, inefficiency at the time it occurs, thus helping to overcome an objection frequently levelled at accounting devices — that they present managerial information too late.

It should be apparent that variations between the two methods as far as the accounting entries are concerned is not great.

However, students should realise that the nature of the particular business and the overall system — of which standard costing is a part — largely determine the manner in which the entries for recording standard costs in the accounts are made.



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Capital Investment Proposals*

By N. R. WILLS, *Professor of Business Administration, University of New South Wales.*

THE general theme for discussion at the convention is the challenge of change in management accounting. Under the heading of "Capital Investment Proposals" I propose discussing the implications for organisation theory and practice of capital investment proposals. It is one thing to devise, develop and apply new techniques in the investment field; it is another to organise the company structure in such a way as to make control effective.

At a recent meeting of the Chartered Institute of Secretaries, Australian Division, Professor Russell Mathews was constrained to remark:

> "I believe that investment policy is the most crucial area in the whole field of managerial decision-making, and the success or failure of a business primarily deneds on the wisdom of the investment decisions made by its management. Yet it remains true that many businesses invest in plant and equipment on the basis of snap decisions by senior executives, rule of thumb methods unsupported by adequate factual knowledge, or uninformed guesses."

If we agree with Professor Mathews, then there can be no gainsaying the importance of the investment decision-making area in the life of the modern firm, and therefore its primary relevance for discussion at a convention of this nature.

I believe that what we loosely call capitalism is emerging slowly but surely from the trials and errors of the past. The "boom-slump" cycle which in the past has bedevilled our Western type industrial society is only as old as industrial society itself. In the forms in which we recognise it, the cycle first made its appearance in the 18th century and continued on throughout the 19th century to reach its grand climax in the Great Depression of the 1930's. The remarkable thing about the past 20 or so years is that the cycle seems to have moderated itself. Why?

It is my view, and this I share with others more qualified than I, that knowledge and understanding of the causes of the cycle have been conclusively elucidated during the past four decades. In every way we are better served — with economic theory, with the tools of measurement and the apparatus of management. Owners, managers and civil servants of past generations were ill equipped to place a restraining hand on the conflicting elements in economic life. As a result, the cycles worked themselves out very largely unplanned and unfettered. Against the rising tide of industrialization and productivity there were many cross currents, many disasters, many periods of depression and of hardship, from which our ancestors so to speak picked themselves up and started again. Nevertheless, the keynote throughout that whole period was evolution. Skills were steadily being acquired; each financial disaster taught some lesson, but it took the major upheavals of World War I and of the Great Depression to bring about a major improvement in economic thinking and practice.

I remind you of these facts of economic history because I do not want you to discount the importance of financial management in the firm, for the working of the economy as a whole. Even today, with the greatly increased importance of the public sector and with the fairly new and accepted role of government as economic regulator, most of the means of production remain within private hands.

* An address delivered at the third annual convention of the Victorian Division of The Australasian Institute of Cost Accountants held in August, 1960, at the Australian Administrative Staff College, Mt. Eliza, Victoria.

At a rough estimate, over 40% of fixed capital investment taking place in Australia, is the result of decisions made by management outside the direct control of public authority.

I think most of us would agree that the striking improvement in economic management since 1940 is due to more sophisticated financial policies shaped and implemented both by government and by firms, but there is room for still more improvement. The fact that capitalism, as defined by Marx, has not broken down under its own weight is surely conclusive proof that we can make a decentralized and pluralistic system work for the well being of the many. This is surely the challenge of our times and our system. We *must* make it work efficiently and successfully in the economic sphere if it is to prove itself superior to alternative forms of organisation. Since investment is surely the key to economic progress, we must manage investment with all the skills available to us.

If it is our belief that we should leave most of the economic decision-making in the hands of non-government organisations, we have no escape from the responsibility that goes with this permissive authority. If we are to have the authority to shape our own investment programmes, we have no alternative than to give of our best. For what we do will inevitably affect future growth, not only our own, but that of others. The sources of capital are not unlimited and it has therefore to be used efficiently; and I include in efficiency the efficient use of the individuals who are part of our capital stock.

One of the spectacular trends of modern times has been the growth in size of the firm. Compared with its 19th century prototypes, the typical firm is now a vastly more complicated organisation. The industrial revolution was put in train by essentially small groups — individual owners, entrepreneurs and partnerships. Outputs, both individually and in total, were much smaller than today, although the numbers of firms involved in any one industry were relatively greater. The trend of the present century has been towards greater total outputs, and greater unit outputs, while the firms themselves are much larger than they were fifty years ago.

In its annual review of the 500 largest industrial companies in the United States, *Fortune* magazine recently reported that the first 500 firms were not only responsible for half the sales in the United States, but for 70% of the profits. The problems associated with organising companies have grown in even greater proportion than their size since the demands of today's business environment are more pressing and more complicated.

Whereas our forebears were primarily concerned with production and technology, our responsibilities are spread over a very much wider field embracing areas largely unknown, ignored or unheeded by earlier managers. But greater efficiency is the reward for involvement.

It is understandable that entrepreneurs in earlier decades paid most of their attention to production and its attendant problems. Production was the first and greatest gift of industrial society to mankind. The search for economic stability came much later.

But we must not forget that in the past production was obtained often at a heavy social cost. It took the international dislocation of World War I and its aftermath to force both governments and entrepreneurs to search for better ways.

It has often been said that we of the West are all Keynesians today; for it was Lord Keynes and his colleagues a generation ago who showed how the essential parts of the economy — production, consumption, savings, investment and employment — fitted together; and more important they also gave us the major techniques of economic control. While we are no less concerned today with our particular production functions, business leaders as well as govenment are well aware of their economic and social responsibilities. Technical efficiency is not enough; we must be economically and

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socially efficient if western society is to keep permanently ahead of communism.

We are certainly more efficient than our forebears, but maintenance of economic and social efficiency in a plural society means self-discipline, constant analysis and planning on the part of business firms, together with a degree of control on the part of governments. Let no one imagine that we can do without efficient government. But I say a degree of control because none of us wants to yield up the flexibility of our system. This is its great virtue. If we can preserve flexibility while maintaining stability, we will be able to look any rival social, political or economic system, squarely in the eye and say that ours is the superior system. But stability with growth is our goal. We must sharpen our tools of analysis so as to remove as far as they can be humanly removed, the elements of uncertainty, carelessness or irresponsibility from our decision-making. The total effects of decision-making in the end are only the sum of the many decisions being taken in board rooms and in government offices across the face of the land. If our decisions are faulty and badly based, the total result will be of the same negative quality.

There are two primary ingredients in successful planning — correct technique and good organisation. The two are complementary and this is especially true of investment planning. Our capital budgeting will be no more nor less successful than the organisation we use to support it. The shape of our administrative machinery will vary with the size of the firm; but the variance should be in the direction only of numbers involved and not in quality. In this complicated and self-conscious age, there is an ever growing need for persons of skill and intellectual training. In the past most industrial firms realised the importance of training and skill on the production side; but awareness of the equally pressing need for persons of financial skill has been of more recent growth. Therefore, my first thought would be that in planning the financial part of the organisation, we must search for the right persons and recruit them into our ranks. We want nothing but the best if the planning of capital expenditure is to be carried out with the same care as production-planning. The importance Central Government has come to place on financial planning is well evidenced in the composition of the modern Treasury Department. Whether it be in Washington, London or Canberra, I am one who believes that the modern economy is well served. Our financial administrators are men of great skill, and this is a welcome fact since they, even more than ourselves, determine the general framework of economic activity from year to year and from cycle to cycle. I think public finance has much to teach us on the planning side, and I have been very impressed by the great attention paid these days by our senior public servants to future planning for stability as well as growth.

We all know how difficult it is to change the pattern of the going concern, and how equally difficult it is to fit new people and new ideas into an organisation which has not failed to produce the goods in more recent times. There are all kinds of road blocks — vested interests of individuals, administrative traditions and procedures which date back into the earlier days of the organisation— but the effort has to be made if we are to improve the framework of decision-making. Today the capital budget cannot be looked at as just another part of the accounting process. It cannot be left to one or two persons. Admittedly, boards of directors and top management must always play a vital role in shaping the broad outlines of the capital budget. This is as it should be. He would be an odd chairman or chief executive who did not keep in the forefront of his thinking a plan for the future expansion of his business, so that very often he is the initiating point. In the modern corporation however, much more is involved than initiation of a programme at top level. In fact, this is only the beginning. The plan has to be tested, its practicability assessed and its profitability deduced. It is therefore desirable that this whole complicated

operation be institutionalised so that a maximum of knowledge and control can be exercised in shaping the plan. It is also important to remember that in large modern corporations many aspects of the investment plan are the result of creative thinking at levels lower than top management — quite often considerably lower. We must thus devise an organisation which gives the fullest scope to creative thinking at all levels. Useful ideas are not the prerogative of top management and it has been shown time and again that middle management is one of the most fertile sources of innovations.

Naturally, the difficulty of organising appropriate machinery for capital investment planning and control increases with the size of the firm, but the difficulty of introducing new techniques and new people into this area is, ironically, not a factor necessarily related to size. Some of the most conservative and therefore, I must add, backward investment decision-making procedures are found in the smallest firms. Owner-entrepreneurs with long traditions of family association in the business are often the most reluctant to change their methods and their thinking.

Whatever the size of the firm, there is need to take a fresh look at the planning machinery and the people who man it. If owner-entrepreneurs and their associates are sincerely concerned to improve their investment programming and their use of capital resources, almost certainly they will find room for improvement.

In my view there is no single panacea — no one form of organisation to suit all cases. The nature of the business not to mention its size may very well determine what details ought to accompany the broader pattern.

I have already stressed the importance of involving the right sorts of people, that is, people with the right training and outlook. Capital expenditure planning is as much a field for specialists these days as is, say, operations research. It is a field in which economics and statistics are of equal importance to a knowledge of accounting. I would say that every budget director or his equivalent should these days be qualified to speak and think in economic and statistical terms as much as in the language of accountancy.

I can only broadly hint at the kind of administrative machinery we should be aiming at. My first belief is that the programme must be placed within the control of a specialised department, or section of the firm. It is not a job that should be regarded as just one more part of the controller's or chief accountant's function. I am sure that in many firms this step has long since been taken, but it is not as widespread as may be thought. In my idealised organisation, I would have the budget director reporting directly to the chief executive officer, and I would have the budget branch appropriately staffed with analysts capable of planning and producing the firm's short run and long run cash and capital budgets. In the larger firms, I would like to see a budget committee, chaired by the chief executive, its members consisting of the operations manager, sales manager, and budget officer. Plans emanating from the collective mind of the company's board of directors or the chief executive would in the first instance be raised and discussed in budget committee before passing into the budget director's department for shaping and processing.

I believe that there is no escape from centralising the budget or investment planning function in headquarters. Investment planning cannot be decentralized, especially in a multi-plant organisation, so as to become the responsibility of works management. Nevertheless, the latter must be associated with the investment planning function, if ideas so often plentifully and fruitfully evolved at plant level are to have their full value in the total plan. For this reason, I would establish the practise of calling plant management into budget committee deliberations, so that the ideas and thoughts of the part could be incorporated in the

whole after due consideration of their practicability and merit.

In my view, the committee method is the best way administratively of formulating investment policy. The investment plan is essentially a collective responsibility. Admittedly, the head of the firm has an important part to play since he must answer for the plan to the board of directors and ultimately to the shareholders; but to achieve the best possible plan and one having the widest acceptability, he is a wise chief executive who brings into the policy-making-process, the widest possible expression of opinion and of expertise. It is certainly a chief executive's function to think ahead for the firm; but he should always take into account the views of other executives. For this reason, I would choose the formal committee method as being the best way of achieving the best plan.

There are many who feel that informal organisation has much in its favour, and that the chief executive, by weighing up and taking into account informal discussions with key personnel in the course of managing the business from day to day, will arrive at the most satisfactory investment programme. But I do not agree with this view, at least as it applies to investment planning. This function is so important as to require not only that it be done effectively, but that it be seen to be done, and this is best achieved by the use of formal committees. The wise firm will see to it that appropriate machinery for checking performance is created within the planning organisation, and this may require sub-committees of the central budget committee at plant level, reporting to the chief budget officer at regular intervals.

It is my belief that the investment programme should be backed by appropriate research. We cannot arrive at the best decisions about investment programmes unless we have taken into account all the facts we can muster bearing on the future success of the investment. I know there are real problems for the small firm when it comes to research and my only suggestion here is that they should take full advantage of the facilities these days offered by reputable consultants. This is probably the cheapest way of obtaining the relevant facts about future markets or future demand for the products they have in mind to make. But for the firms that can afford it, it is preferable that they establish their own forecasting sections. I suppose there are some who regard forecasting as mere crystal gazing; but I do not subscribe to such scepticism. There is a great deal we can find out about likely future trends by extrapolating past and present experience, in our own industry and in the economy generally. Given certain assumptions, a reputable forecaster can arrive at a prognosis about future demand which will not be so very far short of the mark. I believe therefore that the long term sales forecast, appropriately made, has a vital bearing on the investment programme. We can no longer afford to outlay large amounts of capital—that scarce and precious commodity—with only faith and hope to support us. We all know that more often than not intuition and risk does pay off, but there are no statistics to show how often faith and hope have been misplaced with results often disastrous for the particular firm. More importantly, because of our innate conservatism, without a well supported demand forecast, many managements may be loath to take the risk involved in a major investment decision. As a result, the firm may not grow as rapidly as it could, in all confidence and safety, have expected to; and this of course is a real cost in the long run. I therefore place great importance on demand analysis and would make it an important, indeed a key function in the planning both of short run and long run investment.

Similarly, with product development; the progressive firm must always be searching for new avenues into which to move, and in this complex and prosperous world, where tastes and technology change frequently and are ever widening, it is not enough for the chief executive and his sales adviser to think up new

lines and new products. Product development should be the responsibility of a chosen task-force within the organisation, paid to come up with creative thinking and concrete suggestions.

In the larger firms, basic scientific and technical research also have a vital part to play in shaping plans for the future. It is for this reason and not for any fadism or respect for Professor Parkinson's notorious "laws" that basic research has come to play such an important part in American firms.

Since we must be able to lay hands on the funds required (a large part of which will always come from retained earnings), the importance of economy on the operational side of the business must be stressed. Operations research, a technique aimed at cost savings, can help to shape the investment programme from the funds side, and it has a contribution to make to the planning procedure.

The investment programme of the modern firm is central to all other considerations. The stability we enjoy today in the Western world stems not a little from our greater sophistication in handling this function. But this sophistication calls for the use of highly trained people with a knowledge not only of accounting, but of modern economics. The men responsible for investment planning must have a feeling for the economic cycle as well as for the annual cycle of the firm, for, as we all know, the economic cycle is no slave to the Julian calendar! In planning its investment, the modern firm therefore needs to associate its thinking with the longer run cycle of the economy as a whole.

The importance of the investment planning function is such that it needs to be institutionalised so that all relevant opinions within the firm will bear upon it.

Finally, it is my belief that it must be supported by research appropriately undertaken in the right atmosphere and dissociated from day-to-day business operations. If we accept these canons and precepts, then I feel confident that, given the refinements of modern technique, we will achieve even greater stability within a framework of vigorous and sustained economic growth.

BINDERS FOR SOCIETY PUBLICATIONS

BINDERS for 1961 issues of *The Australian Accountant* are now available. They have hard covers finished in durable black cloth and are gold blocked on the spine with the name of the publication and the year of issue. They hold twelve copies of the journal by means of easily removable steel rods, this type of fixture allowing the pages to remain flat when the binder is open.

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Economical Planning Periods for Capital Works

By I. McDOWELL, B.A., B.SC., A.A.S.A.,

ATTENTION has been drawn recently to use of the discounted cash flow method in comparison of alternative proposals for capital works. The present article describes the treatment of a case where the precise alternatives are not known at the beginning, but it is necessary to discover what the most economical course of action is.

Suppose our client or employer intends to build a factory to cope with increasing demand for his product. He has an ample site, but is uncertain how large the factory should be. If he builds to meet only next year's demand, he will obviously be compelled to build again in the following year. On the other hand, if he provides accommodation for plant to meet demand ten years hence, there will be a proportion of idle floor space during the whole of this time. For what period, then, should he build? Can we help him?

From available data, we derive the following information.

1. Demand for the product can be expected to increase by a constant amount each year, which we will call d units.
2. Floor space requirements for production will be proportional to the forecast annual demand. If k units of floor space are required for plant to produce one unit of product each year, then knd units of floor space will be required to cater for the demand in the nth year.
3. Building costs will, to a reasonable approximation, comprise two components. There will be a fixed cost (b) associated with a building of any size, and a variable cost which is proportional to the number of units of floor space to be provided. Thus the cost of a building which meets requirements in the nth year may be written £(aknd + b), where a and b are constants determined by the type of building which is preferred.
4. When the first building is fully utilized, another will be built, and so on.
5. The cost of long-term funds is at a rate r per annum, so that the present value of the cost of providing an additional building in n years is £ $\frac{aknd + b}{(1 + r)^n}$. For convenience in handling this expression mathematically, we replace $(1 + r)^n$ by e^{rn}, which it equals approximately at interest rates encountered in practice. The symbol e is the natural base for logarithms, and has the useful property that $\frac{d}{dx}(e^x) = e^x$.

Why not just go ahead and build a large building? The reason is that the present value of the cost of unused floor space in future new buildings, which is provided ahead of utilization, may exceed the present value of all the fixed components of cost, b. This suggests a criterion on which an answer may be obtained, viz., that the total spending in perpetuity on a discounted cash basis be kept to a minimum. Hence we proceed by writing an expression for this total cost and minimizing it by means of the differential calculus.

The cost of the first building is aknd + b. The cost of the second, reduced to its present value, is $\frac{aknd + b}{(1 + r)^n}$, which we rewrite $(aknd + b)e^{-rn}$. Our planning period, in this case, is n years. Similarly, the cost of the xth building is $(aknd + b)e^{-xrn}$, and the total cost on a present value basis is:

$$(akrd + b) + (akrd + b)e^{-rn} + (akrd + b)e^{-2rn} + (akrd + b)e^{-3rn} + \ldots \ldots + (akrd + b)e^{-xrn} + \text{etc. etc.}$$

This is a geometrical progression, and its sum is $\frac{akrd + b}{1 - e^{-rn}}$. Differentiating with respect to the unknown variable n, we obtain:

$$\frac{d(cost)}{dn} = \frac{akd(1 - e^{-rn}) - r(akrd + b)e^{-rn}}{(1 - e^{-rn})^2}$$

Total cost is minimized when this expression = 0. This occurs when:

$$akd(1 - e^{-rn}) = r(akrd + b)e^{-rn}$$

i.e. $akd(e^{rn} - rn - 1) = br$

i.e. $\frac{akd}{br} = \frac{1}{e^{rn} - rn - 1}$

Graphs of this relationship are shown in Figure 1, which gives the economical planning period n years on the horizontal axis in relation to the function of the cost constants a and b, the plant capacity constant k, the interest rate r and the annual demand d.

It remains only to determine the period for which the factory should provide in a specific instance, by calculating $\frac{akd}{br}$ from actual values and entering the graph for the result.

The curves confirm what we would expect, viz., that the higher the cost of money, the shorter the period for which we should recommend that the initial building cater. On the other hand, the smaller the annual increase in forecast demand, the longer the period for which we should provide. The graph also supports the expectancy that, the higher the fixed cost of building in relation to the variable cost, the fewer the buildings erected in the long run.

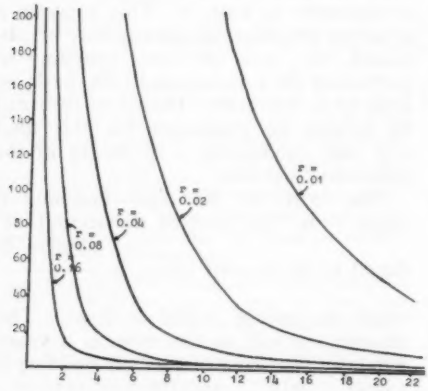


FIG. 1

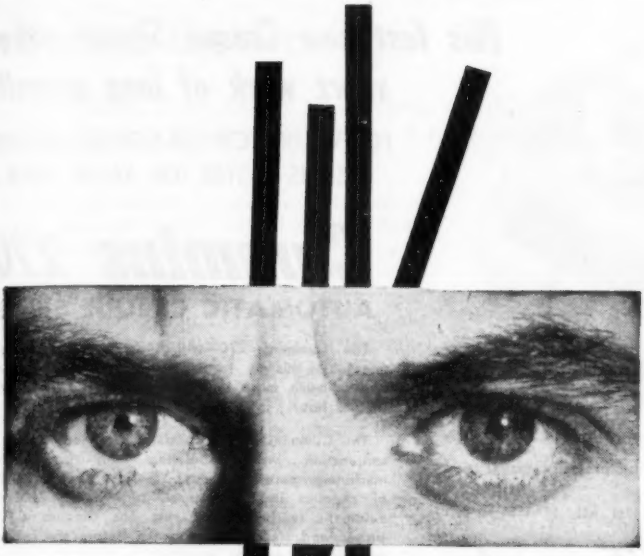
The following example shows how the graph may be used. Suppose the demand for the product manufactured by our client or employer increases at a rate d = 1,000 units per year. The floor space requirement k = 0.1 square feet per production unit per year. The interest rate is 8% p.a., i.e., r = 0.08. The cost of a building of the type proposed is £(3N + 600) where N is the floor space in square feet to be provided; thus $\frac{b}{a} = 200$. Substituting, we find

$$\frac{akd}{br} = \frac{100}{200 \times 0.08} = \frac{1}{0.16} = 6.25.$$

Entering the graph at this value and for r = 0.08 leads to a result for n = 7 years. Hence, 7,000 square feet of floor space costing £21,600 should be provided at the outset and, apart from the influence of other factors, we would recommend accordingly.

Needless to say, this approach is not expected to provide the final answer to any given problem. But a solution of this nature is a guide to decision making which improves the probability of the decision being correct. In a practical situation, the indication of what is the economical way to proceed is useful only when brought into relationship with other factors affecting the decision, and this is the way in which it should normally be used.

Readers interested in the case where demand increases at an increasing instead of a constant, rate, may peruse a treatment by a similar technique in an article by the present writer in the *Journal of the Operations Research Society* of America of July-August this year.



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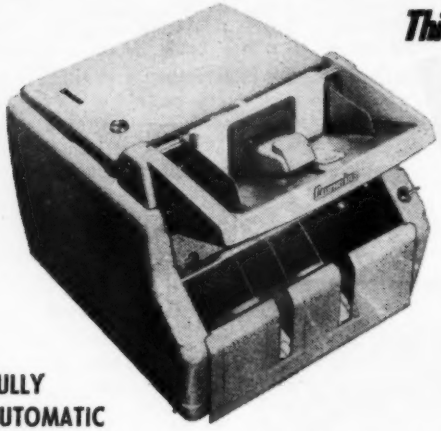

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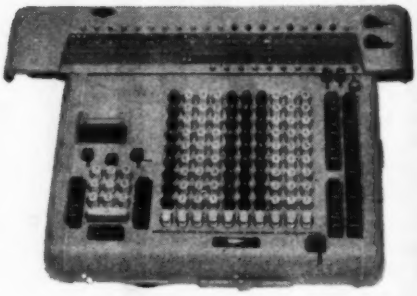

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Capital Erosion

A REPLY by Messrs. H. SHAW, A.A.S.A., F.C.A.A., G. STERNS, B.Com., A.A.S.A., and S. R. FORELL, A.A.S.A.

In the October, 1960 issue of The Australian Accountant *Mr. R. C. Dalton listed a number of extracts, including some from our article, "Inflation and Accounting Practice" in the July, 1960 issue, and added his comments, to some of which we reply below.*

We are unable to see the meaning of the statement on p. 515 that the theory of current income takes much and gives little, as Mr. Dalton does not say much beyond that statement; also, the example that follows on p. 515 does not show what it is that the theory of current income "reclaims one hundredfold".

Regarding Mr. Dalton's example on p. 515 we consider that the chairman of the company would be in a very fortunate position indeed because we believe, as Mr. Dalton does, that prices will not return to those of 1900. For this reason it would have been proper to make use of the "revaluation reserves" for bonus issues. As far as we know the issuing of bonus shares does not usually create many difficulties for the directors at the annual meeting. We consider that it would be proper to issue bonus shares in this connection because the "reserves" have not been accumulated from earnings but from inflationary gains, sometimes called "capital gains". The obvious way to capitalise these gains is by issue of bonus shares.

On p. 516 Mr. Dalton denies that stocks on hand, even if inflated, can have an effect on accounting profits. He explains at great length that closing stocks are not to be regarded as an addition to sales, but fails to mention, perhaps inadvertently, that opening stocks are equally not to be regarded as an addition to purchases. It is true that closing stocks are cancelled out by a credit at the same value as originally debited; but it is equally true that *opening stocks* are *not* cancelled out by a credit at the same value as originally debited. They are a carry-over from a previous period and if they are below the prices of the current period then the cost of goods sold is understated to that extent. This point appears to be the source of Mr. Dalton's difficulty. He states that "neither stock-at-start nor stock-at-end need appear in the trading account at all . . ." (p. 516). With this we are in complete agreement, provided the physical quantity of stocks is the same at the beginning and end of the period. What is more, if Mr. Dalton's suggestion (with which we agree) is used then his method will produce a profit identical with our current income! This is illustrated below using the data of our example on pp. 316-319 (but leaving out depreciation):

	Year 1	*Year* 2
Stock at beginning of year (100 units)	£1,000	£1,100
Purchases	5,000	6,800
Sales	6,600	8,200
Stock at end of year (100 units)	1,100	1,265

I. CALCULATION OF PROFIT BY CONVENTIONAL METHODS:

	Year 1	*Year* 2
Sales	£6,600	£8,200
Less Cost of goods sold—		
Opening stock (100 units)	1,000	1,100
Purchases	5,000	6,800
	6,000	7,900
Less Closing stock (100 units)	1,100	1,265
	4,900	6,635
Profit	£1,700	£1,565

II. CALCULATION OF PROFIT WITHOUT INCLUDING OPENING OR CLOSING STOCKS IN THE TRADING ACCOUNT:

	Year 1	*Year* 2
Sales	£6,600	£8,200
Less Purchases	5,000	6,800
Profit	£1,600	£1,400

III. CALCULATION OF CURRENT INCOME AS PER METHOD SUGGESTED IN pp. 317-319 IN THE JULY ISSUE:

	Year 1	*Year* 2
Accounting profit as in I. above	£1,700	£1,565
Less Current value adjustments for opening stocks (as per pp. 318, 319)	100	165
Current income	£1,600	£1,400

The reason why Cases I and II produce different results is obviously the fact that stocks at different dates have different valuations; this point was apparently overlooked by Mr. Dalton.

Depreciation

Turning to depreciation, Mr. Dalton (p. 517) gives an example of entries to be made under current income methods:

Historical purchase cost of asset, £1,000,

Normal depreciation, £100,

Replacement value of asset, £1,250,

Additional depreciation (in current income accounting) £25.

We assume that by "replacement value" he means the *current* replacement cost of the asset. In that case we are in complete agreement with the example. However, Mr. Dalton goes on to say that "the additional charges (£25) in the above instance relate, not to the asset currently in use, but to the asset which will eventually replace it". This is exactly the opposite of what is proposed in current income methods, e.g. our article pp. 318 and 319. The additional depreciation charge has no connection with any future asset which may or may not be purchased when the present asset is used up. Similarly no provision for depreciation is made for that part of an asset, or whole assets, which are used up in prior accounting periods.[1] The additional charge relates to the *present* asset, is determined by reference to the *present* value of such asset, and its effect is to charge *present* income with *present* costs at *present* values. Therefore Mr. Dalton's statement that ". . . when, in course of time, the asset on the books is replaced, this replacement has partially been written off against profits otherwise available for dividend" (p. 517) is completely wrong. For the same reason Mr. Dalton's contention that the additional depreciation charges are double provisions or double charges is in error.

The additional depreciation charge will, of course, reduce "profits otherwise available for dividend", i.e., conventional accounting profits; this is exactly what is desired because at a time of inflation conventional accounting methods result in an over-statement of profit, and therefore conventional accounting profit is only available for dividend if we are prepared to accept capital erosion. The additional depreciation charge is one of the adjustments required to avoid such a situation. The resulting credit balance (which we have called "Price Compensation Account") is added to shareholders' funds. It is commonly referred to as capital profit; inflationary gain may be a more appropriate term.

We are unable to follow Mr. Dalton's statement (p. 517) that the revaluation reserves in his Example 1 are secret reserves. On the contrary, they are quite open and, furthermore, their creation has enabled the assets to be shown at their current values thus avoiding the creation of secret reserves through undervaluation of assets.

Mr. Dalton's apparent difficulty in understanding Extract VIII (which is a quote from our article) seems to arise from the fact that it is a long sentence and refers to what has been said in the two preceding pages of the same article, where we show (second paragraph on p. 315) how conventional accounting

(1) See *The Australian Accountant*, September 1960, pp. 459-60.

methods result in overstated profit and understated assets.

We do not propsoe to alter in any way the descriptions of existing balance sheet items. Indeed, we have taken care to ensure that original values are still shown in the balance sheet and that the conventional accounting profit is also shown.

We agree with the meaning, if not with the wording, of Mr. Dalton's statement that "People who read a balance sheet, for example, have a right to assume that the descriptions applied to listed items fairly describe their general nature inasmuch as, were this not so, publication of a company's final accounts would be farcial" (p. 518). We would like to say, further, that not only the *nature* of the items should be adequately described but also *amounts* in the balance sheet should be a fair representation of the respective items. In this regard the published accounts of some companies which do not take into consideration changing money values, *are* farcial.

—•—

The University of New South Wales

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The University of New South Wales has arranged a series of eight lectures dealing with particular aspects of taxation law and practice, and aspects of trusts and company law, commencing Tuesday, March 14, and continuing each succeeding Tuesday until May 9, 1961.

The first lecture will be given by Mr. J. A. L. Gunn, C.B.E., and will deal with the nature and meaning of income. This particular lecture will commence at 7.00 p.m., although the remaining lectures will commence at 6.30 p.m. and conclude at approximately 8.00 p.m. All lectures will be held at the University, Anzac Parade, Kensington.

The fee for the series will be £8/8/0 and application forms and a detailed programme of the lectures may be obtained from the State Registrar, 5 Bligh Street, Sydney, or the School of Accountancy, University of New South Wales, P.O. Box 1, Kensington, N.S.W.

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Associates: Fuerst, C.; Geake, R. C.; Morel, G. J.; Morphett, V. C.; O'Brien, E. P.; Reed, I.; Short, E. J.

Advanced to Associate: Chatley, K. A.; Watson, J. H. G.

Removed from Register: *Deceased*:— Lethlean, L. H.; Rix, A. A. *Resigned*:— Armstrong, W. F.; Crowe, W. E.; Hill, R. T. J.; Hughes, C. H.; King-Smith, R. J.; O'Connor, M. E. (Miss).

QUEENSLAND

Associate: Brown, G. A.

Removed from Register: *Deceased*:— Kidd, E. G.; Nicholls, A. W.; Parker, L. C.

WESTERN AUSTRALIA

Provisional Associate: Bussemaker, P.

Associate: Lindorff, E. K.

Removed from Register: *Deceased*:— Moyle, R. E. *Resigned*:— Clark, A. G.; Tonkin, J. T.

SOUTH AUSTRALIA

Associate: Geyer, A. T.

Removed from Register: *Deceased*:— Tuohy, K. C.

OVERSEAS

Provincial Associate: Boon, K. C.

Associates: Chan, K. F.; Fowler, H. E. H.; Ikin, N. M.

Advanced to Associate: Ching, S. Y. (Miss); Kanagarajah, T.; Ng, T. K.

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The Australasian Institute of Cost Accountants

VICTORIA

Provisional Associate: Williamson, T. C. (Miss).

Associates: Blytheway, L. A.; Flood, S.

Advanced to Associate: Gibson,, W. A.; Hardy, R. J.

QUEENSLAND

Associate: Mullins, R. D.

Advanced to Associate: Mathiesen, R. E.

Letter to the Editor

REPORT OF THE RESEARCH COMMITTEE ON INTERNAL AUDITING IN AUSTRALIA

The Editor, Sir —

The above publication* is a most valuable contribution to the profession, but I consider that it misses out on the most fundamental aspect of the subject, the status of the internal auditor.

To my way of thinking the development of the internal audit is possibly the greatest innovation in modern accountancy. By its skilful use it will enable an organisation to obtain a degree of check seldom possible with an external audit. But more importantly it could mean the growth of the balance sheet audit, resulting in a marked reduction in the cost of an audit and better use of the professional accountant as an aid to efficient management.

The secret of the correct use of the internal audit lies in the fact as to whom the internal auditor is responsible. It should be the directors of the company. He should be regarded as the board of directors' inspector. Whilst he could work closely with the company's secretary in the presentation of his reports, it is the right of direct access to the board that counts. Once it is accepted that the internal auditor deals direct with the board it ensues:—

(a) The person so appointed must of necessity be of such a calibre that he can deal with directors.
(b) The full significance of his appointment is felt throughout the chain of command.

This means that the internal auditor must be a man qualified in the profession and one who probably attains his appointment at a stage in his life when he has acquired a wide auditing background. His salary should be in keeping with such experience.

To get the best out of the auditing set-up, the internal audit programme should be drawn up in co-ordination with the external audit. If the internal auditor is qualified and has the status as envisaged, the external auditor could rely on the inside checks and tests to a much greater degree. He would thus leave himself to devote time—principal's time—to the most important aspects of his examination.

Whilst the statutory requirements of the external audit are clear cut where shareholders are concerned, the professional responsibility of the external auditor — to advise management on ways and means of improving accounting techniques — is not being utilised to the full. The partnership of the internal and external auditors should materially help this position.

The conclusions reached in Section X of the Report now under review are admirable, but they will mean nothing unless the internal auditor ceases to be just a glorified clerk. Rather he must be a skilled technician responsible to the board of directors. It is for the external auditor, the most conservative of professionals, to set the example by recommending the correct use of the internal auditor. By vision and freshness of purpose the external auditor can thereby win for his profession a new and exciting standard, the counsellor of modern management.

C. C. THOMPSON, A.A.S.A.,
Melbourne.

*Statement on Accounting Practice, No. 6, published as a supplement to the December issue, 1960, of *The Australian Accountant*.

NEWS AND NOTES

AUSTRALIAN SOCIETY OF ACCOUNTANTS

VICTORIA

Divisional Council

At the December meeting of Divisional Council Mr. K. F. Wraith, F.A.S.A., was appointed a Divisional Councillor to fill the casual vacancy caused by the retirement of Mr. H. McE. Scambler in October last. Mr. Wraith is deputy finance manager of Australian Paper Manufacturers Ltd. and has been a member for some time of the Division's Education and Activities Committees.

Programme for 1961

The Division has planned a number of activities for the next few months and for the convenience of members they are listed below. Further details will be forwarded to members or will appear in this column.

Tuesday, March 28
6 p.m. A. Capper Moore Memorial Lecture to follow the Victorian Division's annual meeting which on this occasion will be formal only. At the Assembly Hall, Collins Street.

Friday to Sunday, April 7 to 9
Public Accountants' Convention at Shepparton.

Tuesday, April 11
9.30 a.m. One day convention on electronic data processing for Australian businesses at the Royale Ballroom.
8 p.m. General meeting of the Society and social evening at the Royale Ballroom.

Thursday, April 20
2-6 p.m. Afternoon convention on cycle billing with microfilming at the Employers' Federation Building.

Monday to Thursday, May 1 to 4
4-6 p.m. American lecturer, Mr. Donald J. Bevis at the Bankers' Institute Auditorium, 51 Queen Street, Melbourne.

Monday to Thursday, May 8 to 11
4-6 p.m. American lecturer, Mr. T. Kenneth Haven at the Bankers' Institute auditorium.

Monday to Thursday, May 15 to 18
4-6 p.m. American lecturer, Mr. Morris R. Liles at the Bankers' Institute auditorium.

Monday to Thursday, May 22 to 25
4-6 p.m. American lecturer, Mr. Kenneth G. Stuart, at the Bankers' Institute auditorium.

Thursday 8, Tuesday 13, Thursday 15 June
6 p.m. Lecture series: "Financing Business" at the Assembly Hall, Collins Street.

Wednesday, June 28
One-day convention on insurance, Kirrewur Court, Geelong.

Tuesday 18, Tuesday 25, Thursday 27 July
Lecture series on taxation at the Assembly Hall, Collins Street.

Thursday to Saturday, August 24 to 26
Convention on the topic "Executive Development" at the Administration Staff College, Mt. Eliza.

Other events are planned for the remainder of the year.

Practising Accountants' Discussion Group

Mr. R. Plumley, manager of the share register department in a public accountants' office spoke to a combined meeting of the two practising accountants' discussion groups on 23 January. His treatment of the subject, "Share Transfer Work as it Concerns the Public Accountant" enabled members to gain an insight into this rather specialised field of public practice. Mr. Plumley explained the systems used in his office to keep the share registers of a number of companies and the requirements as regards staff, equipment and machines.

Personal

The formation of an Australia wide partnership is announced by the following firms:—Cook, Tomlins & Mirams, 360 Collins Street, Melbourne. Holt & Thompson, 53 Martin Place, Sydney. Thomas Miles & Co., 406 Queen Street, Brisbane. Adamson Penhall & Co., 33 Pirie Street, Adelaide. King Lissiman & Co., 25 William Street, Perth. The Australia wide partnership will be conducted under the firm name of Cook, Thompson & Co. at the offices of each of the member firms in the cities set out above. The individual member firms will also continue to practise under their own names.

Mr. C. E. Harris, who has been a partner of Messrs. Harris and Horne, public accountants, since 1924, retired from the firm on 31 December, 1960. As from 1 January, 1961, Messrs. J. R. Collyer and M. G. Chapman, who have been senior members of the firm for several years, were admitted to the partnership. The practice will be continued under the same name and at the present addresses, 84 William Street, Melbourne and 237 Lonsdale Street, Dandenong.

Mr. R. Bruce Church has been admitted as a partner in the firm of Messrs. R. J. Oehr and Church, public accountants of 486 Bourke Street, Melbourne. The name of the firm remains unchanged.

Mr. L. S. Dimsey, A.A.S.A., has been admitted as a partner in the firm of Messrs. J. S. Eastwood and Etherington, public accountants, of 419 Lonsdale Street, Melbourne. The firm's name remains unchanged.

NEW SOUTH WALES

Personal

Mr. C. H. Prosser retired as chief inspector of the Rural Bank of New South Wales on 31 January, after 48 years' service. Mr. Prosser began his banking career in 1912 and with the establishment of the Rural Bank, became an inspector. His appointment as chief inspector followed in 1936. He is a Fellow of the Australian Society of Accountants and served on Divisional Councils of the Society and its antecedent organisation, the Commonwealth Institute of Accountants, for fifteen years. He was also a State president of the Commonwealth Institute.

Messrs. Lister, Chester and Barnett advise that Mr. H. W. B. Chester has retired from the firm and also from the firm of Messrs. Lister, Chester and Barnett with Messrs. A. B. Wilkinson & Co. Mr. H. H. G. Wilkinson has also retired from the latter firm. The two firms will be carried on under the same firm names at the present addresses by the remaining partners. The remaining partners of Messrs. Lister, Chester and Barnett are Messrs. L. M. Barnett, H. J. Tomlinson, B. P. Woodward and D. T. Pitt. The partners of Messrs. Lister, Chester and Barnett with A. B. Wilkinson & Co. are Messrs. L. M. Barnett, H. J. Tomlinson and B. P. Woodward.

Messrs. Perry, Johnson, Beardsmore and Wilton advise that Mr. A. B. Thomas who has been a senior member of their staff for many years, has been admitted as a partner.

Mr. E. Yelf, A.A.S.A., has been appointed secretary of Country Broadcasting and Television Services Ltd., and of Country Television Services Ltd.

The office of Mr. A. E. Saxton, F.A.S.A., public accountant and system consultant, is now situated at Sirius House, 23-25 Macquarie Place, Sydney. The new telephone number is 27 8077.

Australian Society of Accountants — Victorian Division

ONE DAY CONVENTION

Electronic Data Processing for Australian Businesses

This convention will be held at the Royale Ballroom, Exhibition Gardens, Carlton, commencing at 9.30 a.m. on Tuesday, April 11, 1961 and finishing at 5.30 p.m. Lunch will be served and morning and afternoon tea will be available.

PROGRAMME

First Paper:

"What should management require of its data processing system?"

Looking at E.D.P. from the point of view of top management. Speaker: Mr. W. A. DICK partner in charge, Administrative Services Division, Messrs. Fuller, King & Co.

Second Paper:

"How can computers and allied equipment contribute to more effective data processing?"

The essential characteristics of computers and allied equipment and the matching of these characteristics with data processing needs. Speaker: Mr. J. B. THACKER, Messrs. Wilson, Bishop and Henderson.

Third Paper:

"How can management capture business data more effectively?"

The problems, equipment and applications in the phase of electronic data processing. Speaker: Mr. C. K. DICKENS, Massey-Ferguson (Aust.) Ltd.

Fourth Paper:

"The use of computers to solve scientific and operations research problems in business"

The feasibility of combining scientific and commercial data processings on the same computer. Speaker: Dr. F. HIRST, Department of Physics, University of Melbourne.

Fifth, Sixth and Seventh Papers:

"Systems applications for electronic equipment available for installation in Australia"

1. *"Production Recording and Control"* Speaker: Mr. T. W. HARTICK, International Computers and Tabulators (Australia) Pty. Ltd.

2. *"Marketing and Sales Research."* Speaker: Mr. J. J. BRAITHWAITE, The Survey Research Centre Pty. Ltd.

3. *"Inventory Control."* Speaker: Mr. A. L. WHEATON, I.B.M. Australia Pty. Ltd.

The convention is on the same day as the general meeting of members which will be followed by a social evening and it is hoped that country members will take the opportunity to visit Melbourne and take part in both activities.

SOUTH AUSTRALIA

Annual General Meeting

Members are reminded that the annual general meeting and smoke social of the Division will be held at the Myer Apollo Dining Hall on Friday, March 17. The notice of the meeting and the reply slip for those wishing to attend the social will be enclosed with the annual report.

Monthly Luncheons

The monthly luncheons will begin on Monday, February 27, and will continue on the last Monday of each month until November. The State Council hopes that members will continue to give their support to these luncheons which have proved so popular in the past.

Practising Accountants' Group

The committee of the Practising Accountants' Group is most anxious to contact all members of the Division who are in practice, and any member not receiving notices of the group's meetings is requested to notify the Registrar. Meetings of the group are held on the last Thursday in each month, usually during the lunch hour, and the committee is at present arranging an attractive programme of lectures on topics of interest to all practising accountants.

Personal

Mrs. S. E. Eglinton, F.A.S.A., has retired as secretary of William Charlick Ltd., and Mr. R. L. McAvaney, A.A.S.A., accountant of the company, has been appointed to the vacancy.

The E. S. & A. Bank Limited, Adelaide, has announced the following appointments to take effect as from 1 February. Mr. A. D. Simpson, A.A.S.A. as manager of the Town Hall branch, and Mr. R. H. Stephen, A.A.S.A. as accountant, Adelaide office.

Mr. C. A. D. Walker, F.A.S.A. has been appointed manager of the Adelaide office of the Savings Bank of South Australia.

AUSTRALIAN ACCOUNTANTS' STUDENTS' SOCIETY

VICTORIA

Visit to New Zealand

On 20 January a party of ten members of the Students' Society left by air for Christchurch on the first leg of a fortnight's tour of New Zealand embracing the cities of Wellington and Auckland. and the scenic beauties of National Park and Rotorua. The New Zealand Society of Accountants through its Students' Societies in Christchurch, Wellington and Auckland entertained the party and arranged visits to New Zealand's industrial and commercial establishments.

Mr. R. L. Williams, president of the Students' Society was the leader of the party, which comprised Miss M. Spry, Messrs. B. Lake, P. Lucas, G. Walker, A. Deed, T. Osborne, L. McKenzie all of Melbourne, Miss D. Wilmot (King Island), Mr. H. Tate (Colac) and Mr. K. Ko (Campsie, Sydney).

The visit returns one made to Melbourne in January 1960 by a party of members from the Christchurch Accountants' Students' Society and it is hoped that a visit to New Zealand will become a biennial event of the Students' Society's syllabus.

Recent Activities

The following lectures were held in the latter part of 1960.

16 and 19 September, "Bankruptcy Law" by E. R. Smail of Messrs. Kennedy, Smail and Middlemiss.

5 October. "Planning of Accounting Systems" by Mr. J. A. Cruickshank, B.Com., A.A.S.A., of Messrs. Fuller, King & Co.

12 October, "Approach to Examinations" by Mr. R. W. Robertson, B.Com., A.A.S.A., of Hemingway Robertson Institute.

14 October, "Auditing and Business Investigations" by Mr. W. F. Clemens, A.A.S.A., of Swinburne Technical College.

The Australasian Institute of Cost Accountants — Western Australian Division

THIRD ANNUAL CONVENTION

"Differential Costing and Export Pricing" will be the theme of the third annual convention to be held on Saturday, 15 April, at the Cottesloe Civic Centre. The programme is as follows:—

10.00 a.m. Assemble.
10.15: Introductory remarks by State president, Mr. F. H. Felton, A.C.A.A.
10.30: Opening and address.
11.00: First paper — "The Problem of Selling on the Export Market."
12.00 noon: Discussion.
12.30 p.m.: Adjourn for lunch.
1.30: Second paper — "How to increase Profits with Lower Prices."
2.30: Discussion.
3.30: Third paper — "Practical Examples of Export Pricing."
4.30: Discussion.
5.30: Dinner.
6.30: Annual general meeting.
7.00: Close.

9 November, "Decimal Currency" by Mr. E. J. L. Tucker, B.Com., A.A.S.A., chairman, Decimal Currency Council.

15 November, "Loss of Profits Insurance" by Mr. J. Waterman, Commercial Union Assurance Co. Ltd.

30 November, Discussion model answers to October, 1960, Examinations, Accounts and Auditing, Stage I, and Company Accounts, Stage II, by Mr. A. E. Speck, B.Com., F.A.S.A., Messrs. A. E. Speck & Associates.

2 December, Discussion model answers to October, 1960 Examinations, Advanced Accountancy A, Stage 3, and Advanced Accountancy B, Stage 3, by Mr. A. E. Speck.

Approaching Activities

The following forthcoming meetings will be of interest to members:

Wednesday, March 8, 1.10 p.m. "Systems of Control of Retail Stock" by Mr. J. D. McKenzie of G. J. Coles & Co. Ltd.

Monday 13, Friday 17 and Monday 20 March respectively, series of lectures at 6.30 p.m. on "Holding Companies" by Mr. G. S. Watson, B.Com., A.A.S.A., internal auditor, Myer Emporium Ltd.

SOUTH AUSTRALIA

Christmas Social

Members of the South Australian Division of the Students' Society gathered at the Hotel Victoria in mid-December for the annual Christmas social. More than 50 members including several representatives of the Divisional Council were present and helped to make the social one of the most successful functions for 1960.

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THE AUSTRALASIAN INSTITUTE OF COST ACCOUNTANTS

SOUTH AUSTRALIA

Annual "Sundowner"

The annual "Sundowner" at the Hotel Rundle was attended by approximately 100 members on 16 December. The "Sundowner" has always proved a popular function in the activities of the Division as it gives members an opportunity of meeting old friends and renewing acquaintances. The State president, Mr. F. R. Harris, welcomed members and extended best wishes for Christmas and the New Year to all present. Guests at the function included the State president of the Australian Society of Accountants, Mr. L. H. Duncan, and Messrs. P. Osborne, J. F. Dunkley, D. Martin and E. White, who had given lectures to members of the Institute and the Work Study Group during the year.

LETTER TO THE EDITOR

SALES TAX CERTIFICATES

The Editor, Sir—

Mr. J. C. M. Classon must be commended for the constructive comments on the use of Sales Tax Certificates contained in his letter to the editor which appeared in your January issue.

However I would go further in one aspect. I suggest two signatures on the purchase order even though they be given by the same officer, if properly authorised.

One would be "Company (or firm) per XYZ" as purchasing officer.

A separate signature on quotation of Sales Tax Certificate which follows Mr. Classon's form(s) with slight modification:

> "I hereby certify that ABC Company Limited is the holder of Sales Tax Certificate No. VS000 for and on behalf of ABC, Public Officer, XYZ".

The real point here is that, in my interpretation of the requirements, the Certificate must be quoted by an individual, and not by a firm or company. If this is so — "I/We . ." would not be literally correct.

ED. F. MEIER
Caulfield South, Victoria.

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N.S.W. GOVERNMENT PUBLICATIONS

The N.S.W. Government Printer has arranged to issue a monthly list of Government publications which are available to the public at a nominal cost. The following publications were recently issued.

ANNUAL REPORTS AND PARLIAMENTARY PAPERS

Auditor General's Report, 30th June, 1960. 25s., postage 2s 8d.
Estimates Public Works and Other Services, 30th June, 1961. 1s 9d., postage 5d.
Public Accountants Registration Board, 1959. 6d., postage 5d.
Report of a Committee Appointed by the Minister for Health in regard to Hospital Fees Payable in Third Party Insurance and Workers Compensation Cases. 6d., postage 5d.
Report of the N.S.W. State Nutrition Committee for the year ended 30th June, 1960. 6d., postage 5d.
Sydney County Council Statement of Accounts, and Balance Sheet for 1959. 1s. 9d., postage 5d.
Dairy Products Board, 30th June, 1960. 9d., postage 5d.
Grain Elevators Board, 31st October, 1959. 1s. 9d., postage 5d.
Report by the Committee of Inquiry on Certain Matters arising under the Valuation of Land Act, 1916-51, September, 1960. 8s., postage 11d.
Rural Bank of N.S.W., 30th June, 1960. 2s., postage 5d.

Postal applications should be made to The Government Printer, Box 4050, G.P.O., Sydney. The N.S.W. Government Printer's monthly publications list is available without charge to interested persons.

PROFESSIONAL NOTICES

Rate per line **5/-**; *minimum per insertion* **15/-**.

ACCOUNTANT — COMPANY SECRETARY REQUIRES POSITION. Fully qualified A.A.S.A., A.C.A.A., A.C.I.S., with extensive business and professional experience, age 47, seeks an accounting position in Melbourne, offering opportunities of undertaking administrative responsibilities. Reply No. 732, c/- Australian Society of Accountants, 37 Queen Street, Melbourne.

ACCOUNTANT required for a senior position with a firm of public accountants with offices in Sydney and on the central north coast of N.S.W. The applicant will be required to control staff and office procedures in the country office. It is not necessary to be qualified, but experience is required. Commencing salary will be in the vicinity of £1,250 p.a. with overtime and a bonus. Write to Griffith, Atkinson and Merrotsy, The Wales House, 66 Pitt Street, Sydney, N.S.W.

FOR SALE — ELLIOTT ADDRESSING MACHINE. Model 300 (electric), plus nine-drawer cabinet, approx. 850 address stencils, typing clamp and stencil softener, excellent condition — £250. The Rice Marketing Board for the State of New South Wales, Box 151, Leeton, N.S.W.

ACCOUNTANT. Firm of public accountants has a position for a qualified or near-qualified senior, capable of handling clients and conducting taxation work to completion. Must have ability to progress and after a training period, to accept responsibility for audit and secretarial work. A definite opportunity for advancement to partnership status is available to a suitable person. The offices are well appointed and well sited in the area. The location would be most suitable to a resident of the Sutherland Shire or the St. George District. Salary and allowances £1,500-£2,000. All replies will be treated as strictly confidential. J. R. Martin & Co., 345 Kingsway, Caringbah, N.S.W.

FOR SALE — Half-interest in lucrative accountancy practice situated in central west New South Wales town. This practice has been established over 30 years — Gross fees exceed £11,500. Plant value £1,000 — Price £5,000 or near offer — Cash only. Reply to Box 730, c/- Australian Society of Accountants, 37 Queen Street, Melbourne, C.1.

ASSOCIATE, with office and specialised clients at North Sydney, wishes to meet associate with general commercial experience and small practice, view to forming partnership. Phone WL 5494.

MELBOURNE PRACTICE OR PARTNERSHIP REQUIRED. Associate, A.R.M.T.C. (secretarial, accounting), with small country practice (to be retained) seeks opportunity to purchase practice or enter partnership Melbourne (city or metropolitan area). Ex-officer income tax department, General accounting and retail experience, married, aged 34 years. Capital and references available. Reply No. 726, c/- Australian Society of Accountants, 37 Queen Street, Melbourne.

CLIENTS REQUIRED — Associate, A.C.I.S., in practice in Sydney, desires purchase clients or very small practice, Sydney or suburbs. Reply No. 731, c/- Australian Society of Accountants, 5 Bligh Street, Sydney.

FOR SALE. Complete installation of 36 column Powers punched card equipment. Has been regularly serviced and is in good running order. Full particulars on application to Box 3347, G.P.O., Sydney, N.S.W.

ACCOUNTANT

Applications are invited by an Australia-wide meat exporting company for a qualified accountant of ability, and with a wide experience to fill a vacancy in the organisation.

Duties: (a) To control the whole of the accounting dept., and ancillary functions. (b) To control all clerical staff, technical and otherwise. (c) To organise, where necessary, and administer systems methods.

Qualifications: Besides being professionally qualified, the successful appointee must have the ability, to take his place in top-management, and to inspire confidence and co-operation on an executive level. Tact, firmness of character and a wide experience in a similar capacity are desirable.

Age: It is unlikely that applicants will have achieved the necessary judgement and experience until the late thirties. 37-42 would be a suitable age group.

Location: Initially Melbourne. Removal expenses of successful applicant will be paid.

Salary: In the vicinity of £2,000 p.a., but a trial period may be required. Superannuation benefits will later be available. Future prospects are excellent for a man capable of demonstrating his worth in the accounting and semi-managerial fields.

Applications: Will be regarded in the strictest confidence and no disclosure whatsoever need be feared. Write in fullest detail to No. 724, c/- Australian Society of Accountants, 5 Bligh Street, Sydney.

YOUNG ACCOUNTANT, 20 to 25 years, required by old-established Melbourne firm of chartered accountants for general audit work under supervision of partners or senior members of staff. This position offers good prospects for advancement with variety of experience. Staff superannuation. Salary commensurate with experience and qualifications. Apply in writing, with references, to Hooke & Graham, 400 Collins Street, Melbourne. All applications will be treated as confidential.

PRACTICE REQUIRED IN BRISBANE. Brisbane practice, preferably with bulk of taxation work, is required. Purchaser will pay good price for suitable practice. Please reply Box No. 719, c/- Australian Society of Accountants, Box 1161P, G.P.O., Brisbane.

CALCULATORS: Griffiths 40-hour wages calculator 42/-; Griffiths tax instalments calculator 15/-; L. C. Publishing Co., G.P.O. Box 5045, Sydney.

SOUTH AUSTRALIAN INSTITUTE OF TECHNOLOGY

North Terrace, Adelaide.

Applications are invited for appointment to the following positions:—

LECTURER IN ACCOUNTANCY — Two positions.

LECTURER IN MERCANTILE LAW — One position.

Commencing salary will be determined according to qualifications and experience within the range £1,675-£2,340. Preference will be given to applicants who hold a degree with majors in accountancy or law and who are members of an appropriate professional body. The appointees will be required to lecture and conduct classes in the fields of Accountancy (including cost accountancy), Auditing, Economics or legal subjects, for which he or she may be qualified. Opportunity may be provided for the lecturer to obtain higher qualifications by studying for a higher degree.

Each position carries liberal annual leave, sick leave, long service leave, study leave, and superannuation benefits.

Applications giving personal, academic and professional details should reach The Institute of Technology not later than 28 February, 1961.

R. W. PARSONS, Director.

FORD MOTOR COMPANY OF AUSTRALIA PTY. LTD.

has vacancies at Head Office, Geelong, for

ACCOUNTANTS

The company has recently re-organised its finance structure to widen its financial management activities in line with the most modern overseas developments. It is now seeking the services of a number of qualified accountants, ranging in experience from the newly-qualified man to the experienced financial manager, for a variety of important appointments within the new structure.

The positions available require imagination, enthusiasm and initiative and offer outstanding opportunities for the acquisition of valuable knowledge and the development of a senior management career.

Those interested are invited to write to the Salaried Employment Manager:—

Ford Motor Company of Australia Pty. Ltd.
Private Mail Bag,
NORTH GEELONG, VIC.

PRACTICE REQUIRED: A member wishes to purchase a moderate-size practice or participating interest in a practice with a principal planning to retire over a period, in Melbourne or suburbs. Please reply to Accountant, P.O. Box 126, Prahran, Victoria.

ACCOUNTANTS

Price Waterhouse & Co., chartered accountants, have vacancies in their Sydney, Melbourne, Brisbane, Adelaide and Perth offices which offer opportunities of rewarding and satisfying careers to men having the requisite technical knowledge and organizing ability for appointment to senior staff positions.

Applicants should be qualified or near-qualified accountants with professional or business experience and the personal qualities which fit them to take responsibility and work with a minimum of supervision. The firm offers a wide range of specialist services to clients but appointments will be made to the audit staff in the first instance.

Salaries are graded according to experience and ability. Membership of a contributory superannuation fund will be open after a qualifying period of service.

Applications should be addressed to "Staff", Price Waterhouse & Co., in any of the above cities.

PRACTICE FOR SALE — Established accountancy practice in southern Queensland coastal town. Gross fees in excess of £3,000. Replies to Box No. 729, c/- The Australian Society of Accountants, Box 1161P, G.P.O., Brisbane.

MEMBER of Society in Sydney like to acquire experience, evenings and week-ends, with practitioner preparing tax returns and allied work. Please reply No. 728, c/- Australian Society of Accountants, 5 Bligh Street, Sydney.

PRACTICE FOR SALE within sixty miles of Sydney, covering two adjacent towns nine miles apart, excellent office accommodation in both sections, reasonable rentals, gross fees £4,000-£4,500 per annum recurrent. Will consider sale on walk-in walk-out basis. No adjustment for work in progress. Would suit registered accountant seeking expanding practice or would consider partner on 50/50 basis to mutual arrangement and satisfaction. Apply first instance to Box 34, Post Office, The Entrance, N.S.W.

CLEARANCE SALE — COPYING MACHINES. Disposal of reconditioned, demonstration and showroom model copying machines to make way for new stock. 100% quality copy, fully guaranteed. Appreciable saving in cost. L. W. Bagley Pty. Ltd., 2 Racecourse Road, North Melbourne. Tel.: 34 9085.

PRACTICE REQUIRED — Young associate is interested in acquiring established country practice, Victoria or southern New South Wales. Reply to No. 727, c/- Australian Society of Accountants, 37 Queen Street, Melbourne.

SEARCHES, lodging and all other matters at Companies and Business Name Branches attended to. Company Services (Vic.) (John Lloyd, ex-Deputy Registrar General and Assistant Registrar of Companies), 443 Little Collins Street, Melbourne. Tel. 67 3861.

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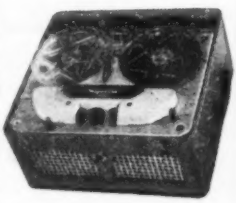
PYROX Magictape Recorder

Everything sounds superb on the new Pyrox Magictape recorder . . . everything "plays back" just the way you recorded it. See the new 3 speed 2 speaker Magictape at your favourite music or radio store today . . . you'll be surprised that so much quality, so much enjoyment, could cost so little.

Check these NEW Magictape features

- 3 speeds — 1⅞", 3¾", 7½" per sec.—gives up to 4 hours playing time per tape.
- Twin speakers—for balanced tone.
- Quick reading recording position indicator.
- Fast rewind, fast forward.
- Separate Bass and Treble tone controls.



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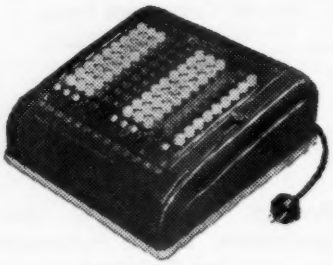

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dial for a demonstration